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ORIGINAL ARTICLES

EXAMINATION OF THE URINE, WITH SPECIAL REFERENCE TO DIGESTIVE AND NUTRITIONAL DISEASES

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The routine examination of the urine, as carried on by the average practitioner and as demanded by the average life insurance company, includes the following points Reaction Specific gravity, Albumin, Sugar For practical clinical purposes this examination is usually sufficient, so long as normal results are obtained

Excluding all reference to local diseases of the urinary apparatus, and taking for granted the freshness of the urine the determination of the *reaction* is not very important. With few exceptions, all clear samples, and all cloudy ones showing a brick-dust deposit, are acid Phosphatic urine indicates malassimilation or excessive waste of tissue, as in phthisis, and while calculous deposits may be present in the urinary tract, the essential condition of disease lies with the digestive apparatus, and more particularly with the intestine and its tributary glands With the exclusions noted above the volatile alkali ammonia cannot be present

Almost the greatest and wisest, and certainly the meanest, physician whom I ever knew, used to impress on me the importance of taking the *specific gravity* of the urine, insisting that it was for most purposes, the best index of the actual work done by the kidneys, and that, while chemical and microscopical tests might be of great value in first arriving at a diagnosis of the various forms of Bright's disease, cystitis, diabetes, etc., the progress of the case was more clearly marked by the absolute quantity and the specific gravity of the urine than by all other tests This was before

quantitative analysis had come into very general clinical use, and, with this qualification, the ideas quoted need no defense. Yet, if a sample of urine represent a single voidance, there is little use in determining the relative amount of contained solid matter, while, if we have a twenty-four hours' sample, it is better to estimate the quantity of urea. However, the taking of the specific gravity is so simple that it should always be done—for the sake of verifying other results, if for nothing else. Manifestly, if all the solid ingredients of urine were heavier than water, and if they dissolved without adding to the volume of the liquid, the last two figures of the specific gravity would indicate the proportion of solids in a thousand parts. As a matter of fact, some of the ingredients being heavier and some lighter than water, we must multiply the last two figures of the specific gravity by two in order to obtain, approximately, the solids per mille. Although more complicated rules have been given for this computation, we may ignore them, as they simply strain at a gnat after swallowing a camel, for the result is merely approximate and applies not to any particular ingredient of the urine, but to all together, without reference to physiological or pathological importance.

The presence of *albumin* is best determined by Heller's ring test, above cold nitric acid. There are other tests much more delicate, but their very delicacy is a fault, for they may react with mucin (nucleo-albumin?—D. D. Stewart) or they may indicate the presence of infinitesimal amounts of albumin such as normally leak through the renal filter. Various lists have been given of substances which imitate the albumin test. After considerable study, I believe the safest rule to be this. Any resinous drug is eliminated through the kidneys and may give a white ring above cold nitric acid, but this ring may be dissolved by adding a considerable quantity of alcohol. I have also observed that urine containing much calcium oxalate will give a white ring like that of albumin. To be sure, the ring is gradually dissolved, but so is the ring of albumin. On the whole, I believe that if there is much calcium oxalate present, as indicated by the microscope, it is best to add a little hydrochloric acid and apply Heller's test after an hour or two. Even if the albumin is converted into syntonin or albumose by the hydrochloric acid, it will still be detected by the nitric acid. I am inclined to think that many cases of albuminuria without casts may be explained by this fallacy. However, the very presence of calcium oxalate renders the urine irritating, and hence is likely to produce a slight albuminuria.

The *sugar* test may be performed with any alkaline solution of copper sulphate. Fehling's solution is preferable for titration, but for ordinary qualitative work I prefer a 10-per-cent solution of copper sulphate in glycerin, a drop or two of which is added to about one cubic centimeter of official potassium hydrate solution, as needed. These solutions may be kept indefinitely. All chemists lay great stress on the importance of boiling albuminous urine and filtering before applying the sugar test. Personally I have never encountered a sample of urine or of stomach contents in which the neglect of this precaution made the slightest difference in the result.

According to H. C. Wood, copaiba, nitrite of amyl, nitrous oxide, and chloral, when eliminated in the urine, imitate the sugar test. Brunton adds carbon monoxide and salicylic acid to the list, and claims that the nitrites, nitrous oxide and carbon monoxide really cause sugar in the urine. I have almost invariably found a yellowish or yellowish red cloudiness of the urine in applying the sugar test, in the case of patients who have taken salicylates, benzoates, and other substances of the aromatic series. I have never, however, noted the complete and immediate precipitate of cuprous oxide which occurs in genuine glycosuria. Most authorities advise, if there be no distinct precipitate of cuprous oxide, to add a bulk of urine equal to that of the reagent, and boil, then to hold the test tube to the light, and note the presence or absence of a greenish yellow tint, indicating, respectively, the presence or absence of traces of sugar. This advice is very bad practically, however good it may be from a scientific standpoint. Urine normally contains a minute quantity of sugar, and nearly every sample will give a tint which the chemist may be able to distinguish from that produced by small but still appreciable quantities of glucose but which the average physician (including the writer) cannot thus distinguish. The practical outcome of this advice is that most physicians find a trace of sugar wherever they anticipate its presence.

Having obtained a distinct reduction of the copper solution, the diagnosis of diabetes does not necessarily follow. The patient may have spit or vomited into the vessel, when maltose—which also reduces copper—will almost inevitably be present, or the urine may have been contaminated by a bottle or cork that has previously been in contact with syrup. Patients are quite apt to use old medicine bottles for conveying specimens to the doctor, and they have very little idea of being neat with substances that they naturally think of as nasty. Even if the sugar is genuinely present in the urine, it may be due to a temporary glycosuria after a hearty carbohydrate

meal As a matter of fact, however, given a distinct reduction of a copper solution by a sample of urine, the chances are nine out of ten that we have to deal with some form of true diabetes

The peptone test So far as the urine is concerned, there is little need of distinguishing between propeptone and peptone proper, hence we can rely on the rose tint which both impart to an alkaline solution of copper sulphate The test may be applied preliminary to testing for sugar, preferably as a ring test Peptonuria indicates suppuration, either locally in the urinary tract or in some concealed place, when there is usually an underlying tuberculosis It occurred to me that after decomposition of albuminous urine the peptone ring would be observed and might be used as a delicate though indirect test for albumin It appears, however, that ordinary saprophytic germs do not digest albumin as do some pyogenic and truly pathogenic bacteria Thus, we cannot expect the peptone reaction to appear as the result of decomposition, though it is apt to be found in urine already decomposed when it leaves the bladder, probably because there is actual superficial suppuration as well as decomposition of the urine

The test for *bile pigment* is not so valuable as might at first be supposed, since the staining of the urine is practically concomitant with icterus of the skin, mucous membranes, etc A yellow tinge may be noticed in the sclerotics before pigment can be demonstrated in the urine The well known Gmelin test with nitroso-nitric acid may be employed, but a simpler reaction is the green ring formed above diluted tincture or compound solution of iodine, on account of the oxidation of the pigment into biliverdin It may be well to remark, in passing, that jaundice, including staining of the urine, does not in the majority of instances indicate disease of the liver, but is more often due to catarrhal condition of the duodenum and the gall-ducts Hepatic cancer usually produces some icterus, but not much unless there is pressure on the larger ducts Ordinary cirrhosis causes little more than a sallowness, without demonstrable pigment in the urine, hypertrophic forms are more apt to be accompanied with moderate jaundice

The test for *hemoglobin* is mentioned in this category, not because it has any very direct bearing on the digestive organs, but because the usual guaiacum test has given me considerable trouble It has failed with urine into which I have put several drops of blood, with urine in which red blood-cells were visible microscopically, and, on the other hand, I have noted the oxidizing of guaiacum when there was no blood present, both when test papers were used and

when the test was conducted in the "wet way." Inasmuch as the test depends on the oxidizing power of oxyhemoglobin, it seems illogical to add another oxidizing agent, hydrogen peroxide, etc. I certainly would not care to make a diagnosis of hemoglobinuria as opposed to hematuria on the strength of this test, yet I know of no other adapted to clinical use.

The *indican* test is not of special value, as moderate amounts are normally present, and as the only condition with which the presence of indican has been well established is intestinal fermentation and decomposition, and this is easily diagnosed by ordinary physical signs and symptoms. An attempt has been made to connect indicanuria with epilepsy, but probably it has been observed only in cases complicated with intestinal indigestion—not an uncommon occurrence in epileptics. The simplest test consists in oxidizing the indican with nitro hydrochloric acid—or strong hydrochloric acid alone will answer—and extracting with chloroform, which becomes blue. The test may be made approximately quantitative by bleaching with a 5 per-cent solution of calcium hypochlorite but the intensity of the reaction is significant enough to one accustomed to the test.

Ehrlich's test Owing to a misprint I have used till recently sodium nitrate instead of sodium nitrite, and, as might have been expected, have obtained negative results with the urine of typhoid fever patients. However, the test properly conducted has not proved to be infallible either for or against a diagnosis of typhoid. Curiously enough, my solution gives the same reactions with chemicals as are listed for the true one. For example, in a patient who had the severest grade of typhoid, at the end of the first week the typical reaction was absent, but there was the characteristic greenish tinge imparted by salicylic acid, the patient having taken salol, which is eliminated in part as salicylic acid. I have obtained a reddish brown ring in the urine of a healthy man after severe exercise, in that of a woman with gastric ulcer, from which a recovery has apparently been made, and a distinct orange band from the concentrated urine of a woman suffering with a prolonged paroxysm of asthma. On the day after the first of these tests, two samples of urine from the same man were examined with negative results, the reaction apparently depending on the increased elimination of solids during severe exercise. It is perfectly possible that my solution will give the characteristic Ehrlich test under proper circumstances at any rate it seems to have some clinical value in detecting drugs.

An excellent test for *salicylic acid* in the urine consists in the

addition to two or three cubic centimeters of urine, of a few drops of tincture or liquor ferri chloridi. A beautiful permanganate color results if salicylic acid is present. The same tint, though not so marked, is seen in most samples of sweet cider, the salicylic acid (added to prevent fermentation) reacting with the iron of tin cans. This test has been much in vogue in the past for the detection of salol given at the end of a meal, with the idea that it would not be absorbed till it reached the alkaline secretion of the small intestine, and that therefore the appearance of the reaction in the urine would indicate the time of the emptying of the stomach into the intestine. In the *Medical News* of February 9, 1895, I have shown that this test is not to be relied upon. There are, however, cases in which it may still be used for other purposes.

Practically all of the tests for *urea* depend upon breaking it up into gases, the best employ a hypobromite so as to fix the CO_2 and leave only nitrogen to be measured. I ordinarily use the Parke, Davis & Co apparatus, in which the hypobromite solution is made by mixing a solution of potassium bromide and the official Labarraque solution the proportion of urea being read off directly from the cylinder in which the nitrogen is collected. Although not absolutely accurate, this method is nearly enough so for practical purposes. Right here let me say that, between two tests—the one chemically correct, but difficult, tedious, or expensive, and the other approximately correct, but easy, rapid, and cheap—the practical man will prefer the latter. None of us are so astute that we can draw any diagnostic or prognostic distinction between an elimination of, say, 21 grammes of urea and 21 $\frac{1}{4}$ grammes. If we are to make a choice between one absolutely accurate test—supposing such a thing to be possible—and several approximate ones, the wise course will be to choose the latter.

The subject of the elimination of urea has been much misunderstood. It has been said that the method of taking the specific gravity and estimating the total solids is only indirect, whereas, in quantitating the urea, nitrogenous waste is directly measured. Bouchard's elaborate investigations have shown that urea is not a poisonous product, or, at least, only slightly so, thus the estimation of urea shows the elimination of only one result of nitrogenous waste, and that not a particularly harmful one. However, it is altogether probable that the estimation of urea affords a much better idea of the retention of toxic principles, and it certainly indicates the main result of the metabolism of nitrogenous substances better than does the specific-gravity method.

Again, there is an idea that the knowledge of the proportion of urea in a given sample of urine is of diagnostic value. This is not usually the case. We should examine the mixed urine of twenty four hours, or, with a patient whose physiological cycles are of shorter duration—for example, in cases of typhoid fever, with frequent feedings and with the sleep evenly distributed through the day and night—a twelve-hour sample may be sufficient, though, even here, the preference should be given to a study of the urine of the twenty four hours. We may logically compute the output of urea during a given period of activity, for special purposes, usually in the line of physiological study. Thus, we may estimate the elimination of so many hours or so many miles of bicycle riding, the elimination during a game of foot ball, after a hearty meal, etc., in contrast with the elimination during sleep or inactivity, or abstinence from food. But such examinations are not to be compared with the usual clinical intent of this test.

I have quite frequently encountered the opinion that if the urea falls below 35—or at least 30—grammes in twenty four hours, some serious trouble is to be feared. In the first place, it is surprising how few physicians bear in mind the simple and obvious fact that the elimination of urea must depend somewhat on the weight of the patient. For the standard, active man of 70 kilogrammes, the normal output of urea is about 35 grammes daily—or about half a gramme per kilogramme of body weight. But a man, and more particularly a woman may weigh 100 kilogrammes and yet have no more bone, muscle and other active structures than the standard man of 70 kilogrammes. Therefore, we must first of all standardize our patient at what may be termed his vital body weight, subtracting in the case of fat persons and adding for the very emaciated. So far as physiological function is concerned, fat is foreign matter, and its presence or absence has almost no bearing on nitrogenous waste. Again, a quantitative test of urea is rarely made for persons in normal circumstances, even though they may prove to be without disease. Judging from personal experience, I believe that we will usually find the elimination of persons with normal kidneys to be about twenty grammes—not because this is the physiological elimination, but because the patients in whom we suspect renal inadequacy are usually confined to the house, if not to bed, and are eating and oxidizing comparatively little. Given a small woman, confined to bed in a warm room, without appetite for several days, the elimination of urea may be reduced to fifteen or even twelve grammes without pathological significance.

The estimation of urea is of especial value in differentiating certain gastric affections. Many cases that appear to be gastric catarrh are really due to the elimination of urea and other waste products into the stomach, the kidneys themselves being inadequate. Under these circumstances we have vomiting, loss of appetite, failure of acidity, fermentation, etc. While lavage is of direct benefit in such cases, the rational treatment is directed toward eliminating urea through other channels, particularly the bowel and the skin. It is a rule of quite general applicability not to give diuretics in kidney disease. Often chronic interstitial nephritis occurs along with arterial and cardiac changes, to which hepatic sclerosis and chronic gastric catarrh are logical sequences, in such cases there is still a positive indication to remove urea and its accompanying waste products, although the result of treatment may not be so favorable as when the gastric disturbance is purely functional with the stomach.

Regarding the responsibility of urea for gastric, nervous and other symptoms of poisoning, it occurs to me that we may make a comparison to the ordinary test as to the freshness of air in a room. When we see the windows coated with moisture, we say that the air needs changing, not because the water is harmful, but because it has come from the lungs with CO_2 and other still more deleterious excreta. So, it is probably most accurate to regard urea as a concomitant and indicator of positively toxic nitrogenous waste.

Uric acid Just why it is that some persons, at certain times, show an increase of urates in the urine, and, nevertheless, are irritated by their retention in the blood, has never been satisfactorily explained. We recognize in a general way that it is a matter of sub-oxidation, and I believe that we must classify gout and lithemia under one head as different manifestations of the same internal disease. Whether the contracted kidney is the cause or result of some forms of gout, has not been positively demonstrated. It is certainly a cause so far as some attacks are concerned, but in other cases the trouble seems to be one of hepatic indigestion, without the least renal trouble. Often, again, the spontaneous precipitation of urates simply means too concentrated urine, and calls for water, with or without the so-called refrigerant diuretics. The finding of urates should call attention, therefore, not so much to the kidneys as to the stomach, intestine, and liver. It is often advantageous, nevertheless, to be able to state quantitatively the elimination of nitrogenous matters as uric acid, and knowing the amount both of urea and of uric acid eliminated, we have a double clue to the processes of nitrogen-

ous metabolism The normal excretion of uric acid is variously stated at from half a gramme to one gramme daily From a somewhat limited experience, I should decide in favor of the smaller amount, at least as indicated by the test to be described According to this simple method, the uric acid is precipitated with strong hydrochloric acid from, say, 100 Cc of the twenty four hours' mixture After about twelve hours the crystals of uric acid are detached from the walls of the beaker with a glass rod, and are caught on a filter of known weight, which is dried and again weighed A more accurate and much more intricate method is in vogue, but the method described will separate about four fifths of the total amount of uric acid eliminated, and the necessary correction can be readily made

In presenting this paper I do not wish to pose as a chemist nor as an authority on urinary analysis, but merely to refer to such practical points as have been suggested by personal experience in a rather limited variety of diseases

A STUDY OF THE ELEMENT OF VASCULAR COMPRESSION IN FRACTURE-TREATMENT, AS BASED UPON CLINICAL AND EXPERIMENTAL DATA *

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Our studies on the mechanism of the circulation, the vascular apparatus, and the properties of the hematic elements, lead us to the conclusion that, in order for an organ, structure or limb to maintain its full nutrition, its blood-supply must be continuous and as little as possible embarrassed by centric or eccentric influence.

We are likewise assured that in any pathological condition (resulting either from disease or injury) the work of repair may be retarded, or arrested altogether, as much by causes tending to impede the circulation as by the quality of the blood itself, therefore the study of hematic hydrostatics and the influences which govern them deserves a large share of our attention, especially in the domain of surgery.

The vascular apparatus, its mechanism, and the laws which govern its intricate functions, must receive from the operating surgeon special attention and almost incessant study, for many of the physiological problems connected therewith are as yet unsolved.

The precise role which the vessels play in the propulsion of the blood, and the exact part which the corpuscles take in perpetuating movement in the finer capillaries, are by no means determined, nor has the full extent of what Hunter well designated the "vital principle" been fully appreciated, as we shall learn when we come to practically deal with the circulation.

Mechanical hemostasis would seem to have quite attained to its climax of perfection, and of late physicians have turned their attention to changes in the blood to account for many constitutional disturbances that are but very imperfectly understood. My own observations of late, in a course of experiments, convince me that with intelligent and progressive microscopic inquiry, combined with the aid of chemistry, the blood will reveal with unerring certainty many highly important truths bearing on etiology, diagnosis, and prognosis, in disease.

In a late discussion, a surgeon of wide experience† took for his theme, "Delayed Union in Fracture," declaring that, while brilliant advances had been recently made in the more attractive fields of

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†Dr. Geo. C. Peters, M.B., F.R.C.S., Eng. *Canadian Practitioner*, July, 1895.

abdominal, pelvic and brain surgery, our knowledge of the repair of injured bones and the best methods of treatment was little in advance of the times of Pott, Liston, and Syme, not a few cases of delayed union or of non union could yet be seen. He might have added that deformities are not uncommon, and, what is worse, not a few limbs are annually sacrificed, through premature splinting, too tight bandaging, or unyielding fixation, that severe myotrophic changes, persistent neuralgias, and anchyloses of various types, are only too frequently seen. The nutrition in these cases has either been seriously impaired or wholly destroyed. Premature, too rigid or misdirected splinting has compromised that freedom of circulation which is always imperative when we would invite the full co-operation of all the vital processes in the work of restitution or repair.

The *sine qua non* in fracture-treatment is, to secure osseous approximation without impeding the blood-current, and this, under most circumstances may be accomplished.

In a consideration of vascular lesions and hematic disturbances succeeding fractures of the extremities, we are concerned chiefly with the *dynamic* and *mechanical* elements.

Of late we have given special prominence to various fixation contrivances in the adjustment of fractures, and in the compound variety, or those attended with abrasions, when rigid precautions against sepsis have been observed, we are inclined to assume that the greatest dangers which menace a limb's integrity have been averted. But of all things which should engage our attention, in many fractures, none is of greater importance than the state of circulation immediately after the injury is sustained, and its consecutive condition during the course of treatment.

Anatomical structure and vascular function as related to fracture

One who has treated many fractures must have observed many interesting and varied phenomena in connection with lesions in different regions of the body, extensive shattering, or coincident serious bodily injury. The large arteries of the extremities are all deeply lodged, and lie in close contact with the bone-shafts. Over the diaphyses they lie in a loose bed of connective tissues, and thus are permitted to glide aside and escape laceration under ordinary circumstances, but as they approach the joints they generally divide, and are held firmly in position by the unyielding joint-investment. Some of the larger shafts, as the femur and humerus receive large arterial feeders, which penetrate the compact bone substance on their way to the marrow canals.

In children, although the bones are more vascular and the

organic elements preponderate, no severe strain has yet been put on the heart or vascular system, and hence the walls of their larger arteries are less resistant and more easily compressible. In advanced age, degenerative changes having set in, the energy of the circulation has diminished, therefore, in the event of occlusion of a large trunk by pressure, collateral circulation may fail or be but imperfectly established.

The supply of blood in proportion to its volume is greater in the upper than in the lower limbs. Besides, the upper extremity is nearer the heart and is less influenced by gravity. We seldom or never note an early degeneration of the veins of the forearm, with atrophic wasting of the integument—a condition so common in the leg.

The arteries possess much greater resistance to both injury and disease than the veins, for, while gangrene or other malignant disease opens widely all venous structures lying in its way, the arterial walls may be seen standing quite alone in the midst of surrounding ruin. In injuries of the veins, phlebitis and obliteration are commonly witnessed, while the arteries will sustain a similar degree of injury with comparative impunity. By virtue of this inherent power, the arteries, though seldom able to escape the effects of concentrated, localized force when the bone-shaft or the articular end is sundered, in a fracture, do escape with the least degree of impairment of function, and in the event of damage are among the first structures to recover their integrity.

The immediate, secondary and ultimate effects of an injury to the vascular structures, sustained coincidently with fracture. The extent of damage borne by the vessels in a given case of fracture will, primarily, depend on the degree and quality of force applied, and the line of treatment adopted.

In all complete fractures through the single or double bones of a limb, the circulation to the parts beyond is immediately interrupted, in some cases stasis is complete—the blood-current is entirely arrested, the main arterial trunks may have been so damaged by laceration of their walls as to be totally destroyed at this point, when, unless collateral circulation is established, gangrene of the limb is certain to follow.

In the majority of simple fractures through the bone-shafts, for a varying period of time after the injury the circulation in the limb is very much reduced in force. If we examine a limb carefully after this injury is inflicted, we will note in most cases that the surface temperature of it is lowered, and the pulse in the superficial

arteries is either absent or beats with a feeble stroke, the parts are pale, and on pressure it will be noted that sensation is diminished. This arrest or retardation in the peripheral circulation is dependent on two causes.

The first is the application of force at the point where the bone gave way. The main artery or vein has been pierced by the sharp edges of the fractured bone, which is torn from its muscular attachments, one end being pressed down beside the other in such a manner as to strip the muscles from the insertions, lacerate the nerves, and crush the vessels.

In many instances where the bone is fractured by direct contusive force, the vessels suffer severe compression. In one case—in a man whose thigh was crushed and the femur fractured—which came under my care, the femoral artery sustained such serious damage that total death of the limb promptly followed. This was a simple fracture. Persistent pallor, coldness and anesthesia foretold the final issue.

In other fractures the artery is twisted or so extensively stretched that its serous and muscular coats are lacerated or completely torn across.

In many machinery accidents, when the limb is caught in a gearing or belt drawn over a shaft or suddenly wrenched by a lever, although only an apparently simple fracture may have occurred, and but a trivial wound of the soft parts have followed, yet that limb may perish through changes consecutive to serious impairment of the arterial supply. Cases of this character might be cited, in which, though all antiseptic precautions have been observed, the wound fails to heal but gives issue to foul discharges, and the tissues become bloated and discolored, then nothing will save the patient's life, except a prompt amputation. In some cases of this description the inexperienced may incriminate the antiseptic treatment and charge the results to its imperfect application, but it should be remembered that antiseptics at best only inhibit the pathogenic germs of inflammation, and are entirely impotent in arresting either the advent or the advance of those chemical changes which ensue at once upon the death of animal matter. A violent blow or injury will kill an appendage of the trunk, as it will the whole body. Immediately on the blood supply being wholly cut off from the nerves, their vitalizing influence is destroyed and changes of decomposition set in.

The second source of peripheral hemostasis in fracture is central, or psychical. Our patient is in shock, he has sustained, perhaps, simultaneously with the osseous disorganization, serious internal

injury, has suffered great pain, was conscious of impending danger and in a state of intense emotion, probably fright, at the instant of the accident. When such a case comes under observation, we find deathly pallor, a cold, clammy perspiration, and great shock, the fractured limb is cold, and so is the sound one, but what the precise extent of local and vascular lesion is, cannot be determined until general reaction has set in. In this class we have an excellent illustration of the general effect of vascular stasis, which is quite identical with what we observe when a limb is about to succumb. The persistent lowering of the pulse, deepening of the chill, loss of sensation of every description in the affected area, are ominous signs under these circumstances.

"Death of the blood," as Hunter described that final non-coagulable condition of it invariably found in one dying from physical shock, is met with in certain grave fractures. In amputation of an asphyxiated limb after serious trauma thereof, we will frequently observe the same state of the hematic elements.

The secondary effects ensuing, after lesions of the vessels, when a limb has not succumbed outright through thrombosis or obliteration of the arterial lumen, make their impress felt principally in two directions—first, in the processes of repair, and secondly, on the ultimate or permanent condition succeeding recovered function.

EXPERIMENTATION

In a series of experiments made during the past year on the blood and blood-vessels under a multiplicity of conditions deliberately induced, in the lower animals, under anesthesia, one question which I spared no pains to definitely determine was, whether in fracture the circulation to the distal part of a limb was in all cases retarded. Without entering into details on the great diversity of vascular phenomena observed, in a frog's webbing, under the microscope, after single, multiple, and compound fractures were produced, it will suffice to say that, with few exceptions, immediately and for a considerable period of time after the bone was broken, the circulation in the capillaries and the smaller arterioles was completely arrested. In a few it was found that for several days all the smaller vessels were motionless, and in some they so remained until *after* the fractured ends of the bone united.

These experiments were extended to the mammalia—to pups, kittens, and adult dogs, of various ages and sizes. In some, the arteries being sufficiently large, the pulse was examined as to volume and force before and after fracture. In the smaller animals the

main arterial trunk was first exposed, in order that its motion might be seen before and after the trauma was sustained

In all these cases the most pronounced vascular disturbance was noted in the vessels after the shaft of the limb gave way, though it was most positive in the lower third of the humerus or femur. In opening a vessel on the injured side within an hour after fracture, no hemorrhage at all might follow, or very little, and when an artery was opened the blood rather oozed than was propelled in jets as in the sound limb.

From these experiments, and what we observe clinically on the human body, we must conclude that the vascular lesions in all severe fractures of an extremity overshadow in importance even the osseous disorganization itself, and must in large measure influence reparative changes and ultimate function.

The primary effect of vascular injury at the seat of a so called simple fracture will vary, according to the quality and extent of damage of the vessel. In practically all complete fractures, there is vascular laceration, with extravasation into the loose connective tissues. When this is moderate in amount, in a healthy subject, it is probably of little consequence, when, however, a very large clot forms, distends the tissues and provokes inflammation, its influence on the osteogenetic functions must be considerable in the way of delaying repair.

The most frequent type of vascular lesion in cases of fracture is contusion, tension, or laceration of the inner coats of an artery.

A local traumatic endarteritis may provoke a complete arrest of the blood through it, for a varying period of time. The lumen of the vessel is temporarily closed by a thrombus or by the turgid, thickened walls of the vessel, advancing towards the centre and inducing stenotic obstruction. In such instances, nutrition is sustained in the distal parts by the collateral vessels. There can be no question, however, that in many severe fractures of a limb, in which its vitality is not instantly and totally annihilated, the blood current may remain stagnant below the point of injury, and absolute stasis obtain throughout this territory for several hours, and yet resuscitation follow, with full recovery of function. Arrest of cardiac action, or the central circulation, is quickly followed by death, but by a provision of the economy, the essence of which is yet a mystery, a limb may be totally deprived of its circulation for hours and then fully recover its former energy. Certainly, until the full movement of the circulation is re established, the regenerative efforts of the economy are in abeyance, and no repair is possible.

But reaction is finally established, and then we may expect the osseous processes to advance, in large measure, in proportion to the degree of vascular integrity. If the vessels have suffered but moderately and are not hampered by cumbersome or constricting apparatus over the seat of fracture, rapid union, in many cases, may be completed in from a few days to a week, by, practically, *primary union*, but should opposite conditions obtain, sloughs will readily form, and the surgeon's patience will be severely tried before union is completed.

In a considerable number of fractures not compound, the after-results are not quite satisfactory. The patient takes it into his head that something was neglected in treatment, and he may seek redress for his imaginary wrongs in a court of justice, when an unscrupulous lawyer and a few phiant experts (?) are all that is now needed to give his surgical attendant a vast amount of trouble. If the fracture was near a joint, ankylosis may have followed, the former strength of the limb be lost, and the muscles atrophy. If the lower extremity was the seat of the original trouble, an edematous swelling may persist, the foot may chill easily in winter, and perchance, after having been discharged with a limb fully restored and in its normal contour, the full weight of the body may induce deflection, entire ossification of the callus having never been effected.

These unfortunate sequelæ arise from and are dependent on a malnutrition, succeeding a lesion of the vascular structures sustained at the time of fracture, a pathological condition often impossible to recognize at the time of injury, and, even though recognized, not remediable. Much may be hoped for the improvement of such cases in the young and vigorous, but for those past middle life little can be done.

Compound fractures In a considerable proportion of grave compound-fracture cases the propriety of an amputation will often depend on whether a latent vitality still lingers in the mangled limb, whether the corpuscular elements have parted with their characteristic physiological functions, and whether the larger vessels and capillaries are capable of again transmitting these elements onward. These are questions which demand our most serious and thoughtful consideration, before we proceed to sacrifice a limb or any part of it, after a shattering of its osseous structures, for unless a limb has been killed outright—has sustained mortal shock,—by utilizing the aids within our reach we may wholly avert or readily control those infective processes in the presence of which surgery was formerly impotent and lives and limbs were lost in great numbers.

Havem (*Du Sang*, page 217) found that when blood was confined in its vessels at the temperature of the body it retained its vitality for several hours, and every one knows that a limb may be frozen through and its blood remain congealed for hours without impairing its energy and life giving properties. Therefore, with a mangled limb which may be thoroughly sterilized, and which has its principal vascular channels intact, unless sensation in it is totally lost and the low temperature of it deepens, we should exhaust every possible resource to preserve its vitality and overcome local shock, before we give up all hope. But many compound fractures are not so serious in their character as others with an unbroken integument. In the majority of them, with osseous replacement the severed integument quickly closes in and the progress towards recovery is uninterrupted, although the osseous consolidation of the callus occupies a longer period than when the integument is unbroken.

Prophylaxis against complications succeeding or arising through lesions or derangements of the vascular structures. M. Lucas Championniere* has lately published an important treatise on fracture treatment. It is certain to attract notice, coming from so distinguished an authority of the Parisian school and because of the novel and revolutionary views promulgated therein. Briefly summarized he discards every description of splinting, in all fractures except those with a tendency to an overriding of the fragments, and strongly recommends the early and methodical application of massage and passive motion in all fractures of the extremities.

This work is bound to influence our treatment of fractures in the future, although some of the author's views are too extreme, and some of his conclusions are wanting in logic. But the underlying principle, which pervades every chapter, is unquestionably in the right direction. By his system the most unfettered liberty is permitted the circulation everything which in any manner embarrasses this is displaced at the earliest possible date. But his general directions as to treatment apply rather to the consecutive than to the primary stages, though little or nothing is said on the prophylaxis of vascular damage from the maladjustment of splinting, or how we may obviate the dangers which threaten the limb's vitality through the violence of trauma.

On this special phase of the subject, it strikes me, our text books are singularly silent, where much might be said with advantage to all who are specially interested in fracture treatment. The scope of the present contribution will permit only a brief consideration of it.

* *Traitement des Fractures*

Traumatic-fracture hemostasis Various types of vascular stagnation will be witnessed after bones are fractured, a correct appreciation of which will enable us to more and more successfully combat them. These are mechanical or *traumatic*, and *pathological*.

Of the former, the intensity of violence may destroy at once the limb's vitality, the peripheral or vaso-motor terminals of the sympathetic being completely paralyzed, or, in compound fractures, all the main trunks are sundered. These hopeless cases are of rare occurrence, and when the integument remains unbroken it is quite impossible to recognize them until the premonitory signs of decomposition set in.

Again, the limb may be temporarily asphyxiated by (*a*) a laceration of the large vessels, (*b*) by the displaced ends of the fragments impinging on the vessels, (*c*) by contusion of the artery, a solid substance violently compressing it against the bone-shaft, or (*d*) by a twist or torsion of the artery with the other structures, simultaneously with the bone-fracture. In all these cases the main current is temporarily occluded by a thrombus, which in time dissolves, is displaced and resorbed. In dealing with these lesions in the human body an opportunity is seldom presented to demonstrate and prove, during life or after death, just what is the character of those pathological changes that precede restitution of structure and recovery of function, after various vascular traumatism, therefore, animal experimentation, under proper humane precautions, becomes of infinite value in aiding us to clear up many points quite impossible of a rational interpretation without it.

Two years ago, when studying the effects of various vascular injuries on animals, I found that when the trunk of the artery was seized, fixed, and suddenly extended, though the blood-current returned with a feeble impulse, by the next day it had ceased and the vessel's walls were widely distended by a thrombus. After the wound in the tissues had sealed, however, pulsation could be felt over the scar, and on post-mortem examination the vessel was again found pervious.

This observation enforced the important lesson, that *apparent* death of a limb after a violent fracture is not always *real* death, and that the vascular, of all structures in the body, in a marvellous degree possess great regenerative power. But to this, like everything else in the economy, there is a limit. Nature strains to the uttermost her reserve powers, in the preservation of a damaged structure or an organ, though, in order that she may triumph, that obstacles may be removed and fresh impediments obviated, we are

often compelled to invoke the aid of art, aware, however, that without a practical knowledge of the processes of nature and an acquaintance with her unchanging laws our efforts are liable to be misdirected, mischievous, or even destructive in their effects

Pathological stagnation, as a sequel of fracture, is dependent on two widely different conditions, over one of which we have little or no control, the other is seldom encountered, except when conjoined with organic lesion of the vessels, sustained at the time of fracture. In certain subjects suffering from exhausting diseases, advanced in age, or having atheroma of the vessels, it is easy enough to understand how prone a limb may be to take on gangrenous changes, in the event of a serious fracture extensively involving the arteries

To obviate dangerous vascular stasis and favor active structural regeneration The first thing to do with a limb that has been fractured is to place it in a comfortable position. If the surface temperature of a limb is so lowered that there is reason to believe its circulation has been compromised, artificial heat should be applied and the limb should be enveloped in some sort of warm, soft material

In simple fractures it has been quite the uniform custom in the practice of most surgeons, of late years, to splint the limb in plaster-of-paris immediately after injury. My own experience in the treatment of a large number of fractures of every description, has been that this is often wrong and has been responsible for many serious results—for gangrene, sloughs, delayed union non union, and deformities. The great objection to it is that it often embarrasses the circulation. I am wholly at one with Championniere when he advises *no splinting* of any description in fractures near the joints, unattended with displacement, in subjects easily controlled. By taking advantage of muscular relaxation, in flexing the limb we relieve strain. The crushed limb is now so exposed that topical applications may be easily applied, all tension is overcome, and free play is afforded vascular movement, the engorgement certain to follow, with tumefaction of the soft parts, is unrestricted, the nerves are not pressed or strained, hence ease and comfort take the place of pain and distress

The general use of splints in *every type* of fracture is an evidence of blind submission to an antiquated custom. That they are always applied in accordance with any well established rule in surgery, or law governing the regenerative processes in bone-repair, is not true. The fact is, and can be proven, that those bones unite the most quickly and solidly that *cannot be splinted* or "fixed." No

bone in the body will fuse so quickly as the inferior maxilla, as the clavicle, or the ribs, which in respiration are in almost constant but limited motion. Many times in tibial fractures I have seen solid union ensue within a week when no splinting was applied, but the knee was flexed and the leg placed on a pillow.

In many fractures we are obliged to resort to some sort of support for the fragments, when the patient is young or there is a tendency to overriding or lateral displacement. But what material shall we employ for the splint, and when shall we remove it? Materials for general splinting must, of course, vary in quality and strength, but that which in the largest measure fulfills all ordinary purposes is light, elastic, porous, and strong, so shaped and adjusted as to be easily changed and renewed. Plaster-of-paris, except after primary inflammation has subsided and the provisional callus has formed, is not desirable material, everything is buried under its unyielding walls, and as a primary dressing it invites strangulation of the circulation, or by its irregular pressure may lead to sloughing. The time when anything like a permanent apparatus should be applied must be determined according to the special features of each individual case, though as a general rule it may be well to avoid splinting at the primary dressing unless the extent of displacement is considerable and there is good ground for fear that the larger vessels are being imperiled by pressure of the bone-fragments.

The application of splints and bandages on the healthy limb of an animal, I have found to markedly slacken the force of blood-movement in the smaller arteries and capillaries. How much more positive must be such pressure on a limb which has been violently traumatized! It is absurd to suppose that regenerative effort in the disorganized structures can ever commence until the circulation is fully restored.

But it may be alleged that by delay in applying solid dressings, and by not forcing the bone structures into place at the earliest moment, osseous replacement may be attended with needless difficulty, or be even rendered impossible without detriment to the lacerated tissues. This objection, except from a theoretical standpoint, carries no weight with it, for every one knows, who has had much experience with complicated fractures, that after the muscles have been relaxed and spasm passes off, apposition of the fragments is often much more easily effected than shortly after injury, and with the security which antiseptics provide we entail no additional risk by such delay.

It is true that in ~~the~~ ^{the} average case prompt reposition of the frag-

ments, with appropriate support, gives great comfort to the patient and is the proper line to pursue, but when we have such a condition present as points to impending vascular stasis we should be cautious not to further imperil the vitality of the limb by any description of mechanical fixation.

It may be laid down as a practical law, in every case of fracture, regardless of what may be its type or the attending circumstances, that our primary duty is to institute such a therapy as will preserve or restore vascular integrity. This having been assured, we are free to deliberately decide on the adoption of such supports or orthopædia as in our judgment will in the largest degree fulfill the special requirements of the case.

The effects of firm splinting, protracted bandage constriction and fixed position of the limb, on the nutrition of the structures, through an impediment to the general circulation. Many times had I noted a phenomenon in connection with fracture of the lower extremity, in my early experience, which greatly puzzled me, nor could I find one who could explain it. We would have fractures of the femur or perchance of the tibia, which no sort of fixture could perfectly immobilize and no amount of time would consolidate; delayed union would persist, and, stupidly enough, the more manifest was this tendency the firmer we would draw the bandage, with the hope of thus more effectually pressing the ends of the fragments together. But after a time, in despair of securing union, we would place the patient on crutches and remove everything from over the limb when in a short space of time, to our amazement we would discover ossific consolidation complete.

We are in the habit of permitting a current vicious practice in most fractures of the extremities, by keeping the patient in the prone position too long, and then interfering with nature's best-directed efforts by indiscriminately splinting every fracture of the lower extremity, and, what is worst of all, confining the limb *too long* in mechanical adjustment. Veterinarians tell us that with fracture in the lower animals, union without splints is promptly effected, and is seldom followed by deformity. Besides, we all know that no splint yet devised will secure union of the non-vascular neck of an old man's femur, or prevent a certain degree of shortening in nearly every instance when the shaft is fractured completely through. In fractures of the tibia, with the fibula intact—the most common type—we have practically no use for a splint, inasmuch as the unbroken fibula through the muscles and interosseum ligament, provides quite enough support to hold the fragments. Nothing

will excuse indiscriminate splinting, except perhaps its psychical or cosmetic effects

In many severe fractures, besides extensive osseous disorganization there is a coincident extensive lesion of the soft parts the muscles are crushed, the vessels lacerated, and nerves torn through. Now, in the treatment, in order to attain the fullest measure of success, we must keep constantly in view the complicated condition present, and direct the application of such remedies as will secure the best effects in all the anatomical elements. The common error we commit is in regarding the limb as a mere mechanical appendage of the body, without taking into account that it is a vitalized organ, the seat of many complex physiological processes. Therefore, in many severe fractures our attention should not be exclusively addressed to treating the fractured bone, but we should endeavor to favor restoration of other structures, without which all else must end in failure or very unsatisfactory results. The vessels have been badly compromised, motor and sensory impulses have been blunted, the vaso-motor and trophic nerves have suffered, and in consequence a limb recovers slowly or perhaps not at all. In order to obviate as far as possible, then, these unpleasant sequelæ, our consecutive treatment of a fracture must be conducted, always, with a view of preserving and favoring the full nutrition of all the anatomical parts concerned in the trauma, as well as the osseous elements. We should not overlook the articular structures and joint-action, for many a limb may survive fracture, with satisfactory bone-repair, and yet, through extensive fibrous adhesion of the muscle-sheaths, more or less ankylosis and muscular atrophy follow, and in consequence of protracted inaction the limb remain stiff, weak, and painful.

The articulations are mainly constructed and supported by tissues quite devoid of blood-vessels, as cartilage, tendon, and ligament, nevertheless, vitalizing juices must reach them, probably through the basic substance of their protoplasmic corpuscles, by the plasma, by fine branching offshoots from the capillary walls of their overlapping connective-tissue investment, by way of the hyaline cartilage, and directly from the lacunæ of the cancellous bone substance. The integrity, nutrition and vitality of a limb depend in large measure on articular activity. Utilizing a knowledge of this fact, M. Championniere recommends massage of the muscles and moderate motion of the joint, within a few days after all except fractures of an unusual type. Probably we have continued our fixation apparatus too long in ordinary fractures, concentrating too much attention on a feature which is only one essential of fracture-

treatment Bathing, friction, massage, posture, passive motion, and appropriate exercise of the limb—in other words, those measures which tend to overcome vascular tension, congestion, and stasis—have not been utilized with sufficient method and perseverance to fully test their efficacy in simple fracture

The vascular element in compound fractures is one usually of predominant importance, for when the circulation is intact, unless the extent of loss of integument or bone has been very great, we may hope to preserve every limb which formerly had to be sacrificed The great work of Ollier demonstrates what may now be accomplished by osteoplastic methods and Guermontez in his valuable contribution has shown what great aid *dissolement* or ebonation is in many mangling lesions attended with loss of bone substance, nor need be mentioned the invaluable method of Thiersch in reproducing lost integument after such injuries These, however, are but details, our vital concern is to carry the blood beyond the breach in the tissues, into a region on the verge of mortal changes

To deal with the question of the circulation in compound fractures, we must enter on the consideration of a new phase of our subject—a very large one indeed, which I cannot in this paper touch upon Suffice it to say, that no one can pretend to have mastery of even the elements of conservative surgery who has not familiarized himself with its underlying principles, or who does not realize the vital importance of maintaining the integrity of the vascular structures

CONCLUSIONS AND SUMMARY

1 In all serious fractures near or contiguous to the joints, attended with no displacement, in docile patients, such supports only should be employed as will in no manner embarrass the circulation, and every description of firm splinting or rigid fixation should be prohibited until the primary callus is formed and firm approximation of the fragments is assured

2 In every case of fracture of a limb attended with such unequivocal symptoms as point to an impediment in the circulation, through obstruction of the vascular supply to the joints beyond, our primary efforts should be energetically directed to the preservation of the vitality of the limb, rather than to the adjustment of such mechanical appliances as by their pressure may produce a permanent stasis, favor gangrene, or induce delayed union

3 As experimentation and clinical observation unmistakably demonstrate that the integrity of the main vascular channels is

always impaired in various degrees, in various types of fractures, if we would direct such measures of relief as will secure to the limb the best prospects of surviving a partial or complete asphyxia, the state of the circulation should receive special attention

4 Experience proves that the immediate, rigid adjustment of a limb after fracture is not in the line of the most rational treatment, and that anything like firm primary splinting is not only a menace to the vitality of the limb but is quite certain to so interfere with the circulation as to retard nutritive processes and delay or prevent complete ossification and full restoration of function

5 In compound fractures *par excellence*, in the present era of asepsis, the preservation of the mangled limb in nearly all instances depends on the circulation, and our ability to restore it after complete stasis has set in. Therefore, let no one now entertain a thought of sacrificing a limb by amputation, until he has exhausted every resource known to science, and delayed long enough to permit the revival of corpuscular activity in the temporarily paralyzed vessels

6 Early joint-movement, massage, and bathing aid materially in stimulating nutritive changes, repairing structure, and restoring function

7 Fractured bones unite, as do the soft parts, by two distinct processes, known as primary and secondary union, the former, which occurs with the most certainty when no splinting is applied, is the nearest approach to perfection, the latter is the best that can be expected in all serious cases, especially when only imperfect nutrition is maintained, through those influences which make their impress on the circulation

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LAMINECTOMY FOR REMOVAL OF A TUMOR OF THE SPINAL CANAL—DEATH FROM MENINGITIS ON THE SIXTEENTH DAY

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Reports of operation on the spinal cord and its envelopes have not been too numerous to take away the interest in each newly recorded case, and, until the literature of the subject is more voluminous, an account of every laminectomy should be published, regardless of the termination. Hence this article.

Mrs J P M—, of Wichita, Kansas consulted me October 20, 1892. She was 47 years of age, married twenty two years, one child twenty years ago, never pregnant since still menstruating regularly and without trouble. In 1886 had an attack of "dizziness" with sudden, utter helplessness (but no paralysis), which the attending physician pronounced "cerebral hyperemia of the apoplectiform variety," was in bed two weeks. Two years later she had a similar attack, of less severity, being confined to bed only ten days. Complete recovery followed. Aside from this her health had been excellent, as was also her family history. Her illness began in 1890, when she was in perfect health weighing 153 lbs. The first symptom which attracted her attention was a sensation as if a band were bound tightly around her legs at the calf, this feeling would come on when she walked a considerable distance and would be relieved by a few minutes' rest sitting, or even by leaning against a fence. Soon afterwards the same sensation became noticeable in climbing stairs, so she was often compelled to stop a moment to rest, this was associated with more or less weakness in both lower extremities. A little later an involuntary, spasmodic contraction of the legs came on, occasionally, at night. Pain after a time came to be associated with the convulsive movements, which became very severe as the number increased. These spasms were of very frequent occurrence in the winter of 1890-91. About March her legs would "go to sleep" for several moments, from time to time, with much weakness (amounting to almost temporary paralysis) for an hour or more. In the last week of April the feet frequently became numb to above the ankles and had to be rubbed briskly after she lay down. This continued up to June, accompanied by obstinate constipation in spite of abundant laxatives.

June 4, 1891, she was out "calling" in the evening, feeling as well as usual, retired at 10 o'clock. At 2 o'clock she was awakened by a severe pain in the stomach (or at epigastrium), with fearful aching in the extremities, a half-hour later, upon attempting to get upon a chair, she found the left leg paralyzed, both as to sensation and motion, and when placed upon a chair spasmodic contractions of the affected leg became severe and painful—so she was returned to bed with a complete monoplegia. About 7 A M the right leg began to become involved, anesthesia and loss of motion gradually appearing so that by 10 o'clock paraplegia was established. During the forenoon a girdle sensation came on, and anesthesia up to the region of the diaphragm was found to be present. The bladder and rectum were both involved from this date.

In about two months, slight motion (flexion at the hip) returned, and at the end of eight months she could draw both legs up when lying upon her back, but there was total paralysis of sensation, excepting possibly the power to recognize marked changes of temperature. One morning, when trying to turn in bed, there was a severe pain in the back, and paraplegia was again complete, from this time on, pain became a marked feature.

At the time of examination the following notes were made: "Body is in excellent condition, legs and thighs not greatly atrophied. Legs are crossed, toes extended to nearly a straight line, joints are stiff, but by gradual pressure can be bent when ankle clonus becomes marked and the patellar tendon-reflex is increased, legs return to straight line by a succession of jerks. Skin dry but not 'branny'. No perception of pain, but tickling causes spasmodic jerking. No indication of syphilitic infection. Functions of heart, lungs, kidneys and abdominal viscera unimpaired. No trouble with pelvic organs discoverable. Large bed-sore just above lumbar spine, from blister applied some weeks ago, and no indication of healing."

The diagnosis had to be made between a "reflex paraplegia," tumor (syphilitic, tubercular, or other), hysteria, hemorrhage into the meninges, etc., and only by the method known as "differentiation by exclusion." I concluded that it was

Not reflex, because (a) there was no antecedent disease, and (b) no discoverable cause was present at the time of examination,

Not major renal paraplegia, because (a) there was no genito-urinary complication, and (b) the reflexes were preserved,

Not multiple paralysis, because no muscle escaped

Not hemorrhage into the cord, because the onset was not sudden (sharp),

Not ascending paralysis (Landry's), because (a) it was not progressive, and (b) the reflexes were not abolished,

Not central myelitis, because (a) the rectum and bowels were paralyzed, (b) the reflexes were retained, and (c) there was no edema or marked trophic changes,

Not transverse myelitis, because (a) there was no fever at the outset, (b) there were no local pains, and (c) sensibility was not entirely lost until late,

Not syphilis, because (a) there was no history of this disease, and (b) no specific lesions or indications could be discovered elsewhere in the body,

Not hysteria, because (a) there were no evidences of a neurotic tendency, (b) there was no cause, (c) the history was not that of hysteria,

Not hemorrhage into the spinal meninges (gradual—covering hours in reaching its acme—a frequent thing), because (a) there were numerous prodromata for months, (b) the mode of onset—one leg becoming paralyzed before the other—was not that of spinal meningeal hemorrhage, and (c) the girdle sensation, as indicating the well defined upper limit of local trouble, came on too suddenly and was never changed in its location

Having reached the conclusion that the symptoms were due to pressure of a growth in either the cord or its enveloping structures, I sent the case to a neurologist, simply asking "Is this a case in which opening the spinal canal is advisable?" The next day the answer came "It is a case in which there is some pressure on the spinal cord, and operation is the only treatment possible." The patient was therefore sent to the hospital and prepared for operation, by curettage of the ulcer (which was situated on the line of incision) and an attempt to render it sterile, by catharsis, etc

Operation was made October 25, 1892, with the assistance of Drs J F Binmie and T B Thrush. After thorough scrubbing with soap and water the bed sore was covered with iodoform collodion and the surrounding parts again scrubbed, washed with alcohol and then with sublimate solution. The ulcer was then excised and the incision extended upward to the tenth dorsal vertebra and downward to the fourth or fifth lumbar. Then the muscles were dissected away from the spinous processes and laminae of the third, second and first lumbar and twelfth dorsal vertebrae, bleeding (which was very copious) being controlled by pressure. Then the spinous processes of those vertebrae were cut away with rongeur forceps, the periosteum was dissected from the laminae, and

then the bones were sawed nearly through near the junction of the transverse processes with the laminae, division being completed with a chisel. The severed piece of the second lumbar vertebra was then pried up with the bone forceps and cut away with scissors—including about one-third of the tumor. A tumor was seen, the size of a large almond nut, growing from the periosteum of the second and first lumbar and last dorsal vertebrae, of hard consistence, pressing upon the posterior surface of the cord and the beginning of the cauda equina. The lamina of the second lumbar was much softened (by pressure or tuberculosis), and a lot of soft, granulation-like tissue was seen projecting into the spinal canal—much like fungous arthritis, this soft mass was lost during the operation—so its composition is merely a matter of conjecture. The loosened piece of the first lumbar was next pried up and cut out, revealing the remainder of the tumor. This was separated from its attachments without further removal of bone. The edges of the bone were then trimmed up and the question of opening the dura discussed. As there seemed to be no special reason for exposing the cord itself, and as the venous oozing from the bone was excessive and the patient was suffering from the long continuance of anesthesia and considerable loss of blood, I tamponed the wound tightly with iodoform gauze and applied sublimate dressings. Duration of operation one hour and thirty-five minutes.

She was given strychnine, $\frac{1}{15}$ grain, at the close of the operation, 6 P M, and this was repeated at 6 45 with three drachms of whiskey hypodermically. At 8 P M shock was considerable, strychnine and whiskey were repeated. At 11 P M she began to rally, spoke a little and then slept.

Oct 26 At 4 A M the temperature was 99° and pulse 104, the same at 8 A M and at noon. She was then resting quietly, without nausea. At 5 P M she was given a little beef-extract and soon slept nicely. At 9 P M the temperature was 99° and pulse 108. The immense quantity of gauze over the wound was found saturated with cerebro-spinal fluid, showing that the dura was penetrated, so the dressings were changed, but deep gauze not disturbed.

Oct 27 Patient slept most of the night. She was exceedingly weak during the day. Gauze had to be changed twice. Temperature 99.5°. Liquid food and brandy were freely administered.

Oct 28, at 9 15 A M the temperature was 99.5°—shock entirely gone. Under slight chloroform anesthesia I removed the gauze packing, inserted five deep catgut sutures, closing the canal and deep muscles, eight stitches in the superficial muscles, and twelve of

silkworm gut in the skin, with drainage at the site of excision of the ulcer—where the tissues could not be brought together. At noon the temperature rose to 101° and I was greatly alarmed, but at 9 P M it had dropped to 99.5° . She then took food and whiskey well.

Oct 29 Took whiskey, beef juice and milk every two hours during night. In good condition at 9 A M, temperature 99° , and did not rise during the day. In evening serous discharge again necessitated a new dressing.

Oct. 30 Temperature normal. Doing nicely except weakness and repeated saturation of dressings.

Oct 31 Much discharge. Wound pulled apart under gaping point of excision of ulcer. Temperature normal. Gaining in strength. Spastic rigidity of muscles rapidly disappearing. Patient can move both legs slightly, and sensation is quite good in some regions. Paralysis of the bladder has entirely disappeared.

The condition rapidly improved until late in the evening of November 4, when, upon changing the gauze for saturation with fluid, I called for peroxide of hydrogen and a glass syringe to wash out a little debris, the wound was nearly closed by granulation tissue, only a tiny hole communicating with the spinal canal, no pus. I was surprised that the nurse brought the peroxide of hydrogen in a cup instead of bottle, but, presuming the bottle to have been nearly empty so that the solution was poured out for convenience, I made no inquiries but injected fully two drachms, most of it disappeared up the spinal canal and caused pain, and the tissues blanched! The nurse had brought a strong solution of bichloride of mercury instead of hydrogen dioxide, but it was too late to improve matters, except what little could be done by injecting sterilized water. Gauze was soon applied and morphine given hypodermically to relieve pain.

Nov 5 Patient had a severe chill about 2 A M. At 6 A M the temperature was 103° , and at 9 A M 104.5° . She was semi comatose, only scowled when spoken to, but constantly moaned as if in pain. Spinal meningitis well marked. Elaterine ordered.

Nov 6 General hyperesthesia was pronounced—even the legs participating. Vomiting became a marked feature, but bowels moved eight times from the elaterine and the temperature dropped to 103.5° . Wound not discharging.

Nov 7 Delirious part of the day, but temperature declined gradually, the highest register being 101.5° at 11 A M. Hyperesthesia of the special senses marked. One or two light convulsions late in the evening.

Nov 8 Meningitis unquestionably present and involving cerebral as well as spinal structures Failing rapidly

Nov 9 Patient was unconscious all day Some convulsions Wound in excellent condition—nearly healed Vigorous stimulation was employed during the early part of the day, but in the afternoon swallowing became impossible and all efforts were abandoned She died during the night

I am aware this is not the typical history of a case of meningitis, yet, under the circumstances, I am convinced of the accuracy of the diagnosis

The question naturally arises What would have been the result if this accident had not occurred? Unquestionably a vast improvement, possibly a complete cure, the amount of change produced in such a short period leads to the latter conclusion The axis cylinders of the fibres pressed upon were not totally destroyed—there was mere pressure atrophy, and it is not at all unlikely that complete regeneration might have eventually taken place

The tumor was tubercular, as shown by microscopic examination

DUAL ACTION OF THE CEREBRAL HEMISPHERES

BY JAMES G. KIPRAN, M.D.

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The opinion of a possible independent action of the hemispheres has been a favorite one with many neurologists for decades. The subject has been discussed by Dr. W. W. Ireland* in a most charming manner from every standpoint. Dr. C. L. Bruce† has recently revived professional interest in the matter by the narration of the following case of insanity. The patient was under observation continuously for three months up to the time of the report. In one stage he was demented, left-handed, and talked only Welsh and gibberish, in the other he was fairly intelligent, but maniacally mischievous, right handed, and talked English, but could converse also in Welsh. In an intermediate condition he was ambidextrous and spoke a mixture of Welsh and English. In the English stage he remembered nothing of the Welsh stage, but had perfect recollection of anything that had occurred in his previous English stages. Circulation and bodily conditions generally were good in this phase, while in the demented stage his mental and physical conditions were exactly the reverse. In the maniacal condition he wrote legibly with his right hand and produced mirror writing with his left, the specimens obtained (with difficulty) during the demented condition were illegible, but were written with the left hand from left to right. Thinking that the transition from one stage to another might be due to circulatory changes, Dr. Bruce took sphygmographic tracings in both conditions. In the maniacal or English stage the tracing revealed a full pulse of high tension, while the other stage showed lower tension and less volume. Attempts were made to produce the two different stages artificially, but without success. This, Dr. Bruce claims, is a case of right hemispheric melancholia or dementia and of left hemispheric mania, the cerebral hemispheres having probably acted more or less independently prior to the advent of the mental disorders if the existence of such a condition may be assumed. Bruce suggests that only one lobe of the cerebrum—the left—is educated and takes the lead in mental action, the right lobe, functioning mainly in motion, sensation, etc., and playing but a small part in intellection, would naturally show its derangement rather by the symptoms of dementia than by those of mental exaltation.

* *Blot on the Brain*

† *Brain* 1895.

Dr H M Bannister,* commenting, remarks "It seems possible that this condition of independent action of the hemispheres may be only exceptional, and that ordinarily, either originally or through education, they always act together and share the same functions. It will be noted that in this case—though Dr Bruce does not remark it—speech, which is generally regarded as a function of the speech centre in the left hemisphere, was not altogether lost, but was limited to Welsh, his native tongue. This, as far as it goes, would indicate that either the left brain was not altogether inactive or that there were bilateral speech centres."

The position of Dr Bannister as to the probable united action of the hemispheres in speech is, in my judgment, sound. Two cases coming under my observation seem to leave no doubt that the unused island of Reil is, however, educable if the function of the other be destroyed by apoplexy affecting one side of the brain.

A negro, under observation for three weeks until within forty-eight hours of his death, manifested no other trouble with his speech than a great slowness, at the period mentioned, it was found that he had forgotten the names of the tools used in his trade (carpenter), and did not recognize his own name, although he could signify his meaning very well by symbols. He was not hemiplegic. The facial folds were obliterated on both sides. His pupils were unequal. He was incoherent and amnesic—symptoms dependent on the chronic psychosis from which the patient suffered. He gradually sank and died without material change of symptoms. Autopsy disclosed a general bloody suffusion of the pia mater, most marked over the convexity of the left hemisphere, a sub-meningeal extravasation of blood, which had forced its way between the operculum and temporal lobe, covering the whole island of Reil, and was firmly coagulated, the maroon-colored clot covering altogether a circular area involving the first frontal, part of the second frontal, lower third of the præcentral, whole of the gyrus angularis, and all of the first temporal excepting its anterior end, also a firm and laminated blood-clot in the caput of the lenticular nucleus, as well as part of the anterior portion of the internal capsule, some of the external laminae being discolored. This blood had the appearance of being a more recent clot, and was continuous with the sub-meningeal extravasation through a break in the cortical substance of the most anterior gyrus operatus of the island. Broca's convolution, and contiguous portions of the island, were compressed, and their medullary fasciculi were destroyed by the extravasation.

* *Journal of the American Medical Association*, June 1 1895

This case, in which the aphasic symptoms were minimal, demonstrates that no matter how extensive a unilateral lesion may be, if its production be gradual (in this case a slow hemorrhage), time will be given the opposite hemisphere to accommodate itself to its vicarious duties and the increased requirements thrown upon it.

The other case is an antithesis to the one just detailed. The patient had chronic confusional insanity and was for several years in an insane-hospital, he presented no other symptoms than those of the psychosis during this period, particularly no convulsions or paralysis. About three months before death he began to manifest symptoms of pachymeningitis, had sharp localized cephalalgia and became occasionally stupid. There were regular morning rises and evening remissions of temperature. He then exhibited twitching of the facial muscles of both sides and seven weeks after the initial symptoms had manifested themselves he had general bilateral convulsions of an epileptiform character without complete loss of consciousness. Of these attacks he had seven altogether, in the last of which he died. From the time of the occurrence of the first convulsive seizure he became gradually and progressively aphasic, his aphasia being of the purely ataxic variety. At first he used wrong words, or spoke in broken sentences, finally he could not speak at all, and this condition remained unchanged for the remainder of his life. On autopsy the dura mater, which elsewhere was perfectly healthy, was found thickened, infiltrated with pus, and adherent to the skull, on the one hand, and fused with the leptomeninges on the other, over the right frontal lobe. Dense pseudo-membranes were intercalated between the pia and cortex, the sulci were filled with the same material. The whole right frontal lobe as far back as the precentral gyrus and down to the level of the lowest frontal gyrus, was softened and necrotic. Thus much for the pathological side of the case.

There was nearly the same cerebral area involved on the right side, as was involved on the left side in the negro. The lesion was also one of slow production, and yet there was complete aphasia, showing that the left hemisphere had not vicarated for the right. The reason was the teratological condition present: the brain was completely asymmetrical. The left cerebral hemisphere was atrophic, and the right crowded it away from the median line. It is obvious that the left hemisphere was prevented from vicarating for the right on account of its congenital deficiency. This patient was not known to be left-handed. The negro was dextral.

IS THERE A RAMPOLDI'S SIGN?

BY CASEY A. WOOD, M.D.

In looking up the literature of a subject in which I happened to be interested, I ran across the first paper by Rampoldi¹ in which he invited the attention of the profession to the proposition that a transitory but recurrent (and unequal) dilatation of the pupils is an early and almost constant sign of the ordinary form of pulmonary phthisis, and that this pupillary anomaly results from an irritation transmitted by way of the sympathetic to the nerves supplying the iris.

I was induced by the article in question to make some observations on my own account, but as these were neither sufficiently numerous nor extensive to enable me to arrive at any rational conclusion, I said nothing about them. In the last number of the *Annali* however, Rampoldi has again referred to the matter in a way that makes one feel that a proper investigation of the subject is worth while. If it be true that unequally dilated pupils are to be seen in the very early stages of phthisis pulmonalis, how important it is that we should be on the lookout for such an easily recognized sign!

In the article[†] last referred to, Rampoldi reviews the opinions of several writers on this subject, and publishes his later experiences. At the last International Medical Congress, Destree read a paper[‡] in which he claimed that in 97 per cent of cases of tubercular phthisis he had observed an unequal dilatation of the pupils dependent upon irritation of the sympathetic plexus at the hilus of the lung from disease in the bronchial glands. This sign, he claims, often precedes the invasion of the lung tissue, and is an unfailing indication of tuberculosis of the bronchial glands. Cardarelli draws attention to the fact that the tubercular character of the swelling in the peribronchial glands has been recognized for a very long time, and that these glands, like the mesenteric, may retain the bacillus *tuberculosis* in a state of latency.

Destree has elsewhere and later affirmed that after long-continued and daily study of these cases he was able to state positively that the pupillary condition is the result of swelling of the peri-

* *Annali di Ottalmologia* anno xiv fasc. 4

† "Ancora Sulle Variazioni Pupillari dipendenti da Malattie Polmonari di Natura Tuberculare," *Annali di Ottalmologia*, anno xxiii, fasc. 6

‡ "Un Segno Premonitorio della Tuberculosis Polmonare," *Riforma Medica* anno x, No 79

bronchial glands which, pressing upon the filaments of the sympathetic, brings about the mydriasis referred to, and that he had confirmed the fact of pressure upon the nerve by many autopsies. Moreover, recent researches have proved that the peribronchial glands are usually infected very early in pulmonary tuberculosis—are probably the first tissue invaded—and if we could be put into possession of a sign that would indicate that invasion, it is easily understood how important it would be from the standpoint both of diagnosis and treatment

Rampoldi shows that he was the first (in 1885) to draw attention to this sign of pulmonary disease. Later in 1886, he published a case which seemed to confirm the experience of Oehl "that it is possible to transmit a primary excitation of the vagus to the pupil by way of that sympathetic branch that runs from the superior cervical ganglion to the vagus itself "

In addition to this sign, the author believes the following history furnishes evidence of further implication of the ocular nerve supply by tubercular disease of the lungs

R. A—, domestic, aged 16, appeared to be in good health but had suffered for three years with a slight cough, thought to be bronchitic. She visited the clinic *on account of the drooping of the right upper lid*, which had been noticed the previous fortnight. A careful examination of the eyes was made, and it was found that the patient had a decided ptosis on the right side, accompanied by a marked contraction of the corresponding pupil which was, at the same time, sluggish to light and accommodation. In other words, she had a ptosis with an unequal *dilatation* of the *two* pupils. There was no trace of posterior synechiæ, and no refractive error. Vision was normal both for distance and near.

Chiefly on account of the irregular innervation of the iris and levator palpebræ superioris—not otherwise explained—Rampoldi suspected pulmonary disease and sent the patient to the medical clinic. She was found to have tuberculosis of the right apex.

CHEMICAL DIAGNOSIS OF STOMACH AFFECTIONS

BY J. A. WESENER, PH. C., M. D.,

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The anatomical arrangement of the stomach is very simple, but the chemical processes there carried on are most important and complex. The experience of our profession with disease of the kidney teaches us that no symptom or line of symptoms furnishes absolute clues to kidney conditions, the chemistry of the output is demanded in each case. Further, exact knowledge has made the urinary organs the best understood of all the organs, though their functions are most complex. What is true of the kidney is just as true of the stomach, and the technique of stomach-examination for ordinary purposes is not beyond the range of the working practitioner, who can and should determine anacidity, hyperacidity, and other simple questions, instead of depending upon the routine treatment with alkalies, pepsin, etc. It is to be remembered that in the stomach we have a chemical reaction eighteen inches from the mouth. If an acid is demanded and an alkali be given, it will reach the stomach as an alkali, and *vis medicatrix naturæ* or any other force cannot prevent it. If you give the wrong kidney-remedy, the chances are the system will annul it before it does harm, but in stomacheic disease injurious remedies are brought directly into the place of operation.

No single gastric symptom, taken alone, is of any value. I propose to detail in a simple, plain way the tests which are easily within our reach, and which we ought to feel under the same obligation to perform as we do to examine the urine for albumen and sugar.

The usual procedure, in making a chemical analysis of stomach contents, is to direct the patient to take on an empty stomach (before breakfast) two pieces of dry toast and one and a half cups of tea, this, drawn off one hour later, the digestion having reached a maximum degree, should under normal conditions yield about one ounce of fluid matter.

The contents are filtered and tested as follows:

First, reaction. This is determined with litmus, it is usually acid, but may be neutral or even alkaline.

Second, hydrochloric acid. Boas' reagent gives a red color in the presence of mineral acids, and as hydrochloric is the only mineral acid in the stomach a reaction indicates its presence. One drop of

contents plus one drop of Boas' reagent is gently evaporated to dryness, a red color denotes hydrochloric acid, the intensity of color depending upon the strength of acid present. A little practice with this test will tell you whether you are dealing with hyperacidity or subacidity.

Third, quantitative estimation of hydrochloric acid. Leo's method is sufficiently accurate for all clinical purposes. The organic acids are first removed with ether, then 5 Cc of stomach contents plus 5 Cc. of calcium chloride (saturated solution, of neutral reaction), plus a few drops of alcoholic solution of phenolphthalein, are titrated with a decinormal caustic soda solution until a faint permanent red color is produced, then from the graduated pipette read off the number of cubic centimeters of caustic soda used, and compute to 100. Suppose we have used 5 Cc of stomach contents, and 3.5 Cc of the caustic soda solution is required — $5 \times 100 \div 3.5 = 142.8$, the total acidity present. To another 5 Cc of stomach contents add several grains of calcium-carbonate powder (this combines with the hydrochloric and not with the organic acids), aspirate to drive off carbon dioxide, and add 5 Cc. calcium chloride and a few drops of phenolphthalein, and titrate with decinormal caustic soda the same as above, compute to 100, and the answer gives the total organic acids. If we assume the result as 10, the difference (60) is equal to the hydrochloric acid present in 100 Cc of stomach contents, and this multiplied by the acid factor of .0036 gives us .2160 of free hydrochloric acid. The results by this method are a little high, but it is sufficiently accurate for clinical use.

If hydrochloric acid is alone present, and 60 Cc of decinormal caustic soda solution be required to neutralize 100 Cc of stomach contents, this shows a nearly normal acidity.

Fourth, lactic acid. The ordinary tests for lactic acid as employed by clinicians are of no value, and for two reasons. *First*, lactic acid, when found after Ewald's test meal, is either ingested with the meal or produced by fermentation—the latter alone is of diagnostic value, *second*, Uffelmann's reagent, which is always used in testing, reacts with a number of compounds, as alcohol, phosphates, sugar, etc., and therefore is useless.

Fifth, fatty acids. Butyric and acetic acids are found in dilatation of the stomach, and may be recognized by their peculiar aromatic odor.

Sixth, pepsin. The pepsin test is seldom necessary unless atrophy is suspected. In these cases proceed as follows. The contents are acidulated with enough hydrochloric acid to represent

about 0.2 per cent strength (i. e., to 5 Cc of stomach contents add 5 Cc of a 0.4-per-cent solution of hydrochloric acid), add to this the shavings from the white of an egg, and keep at a temperature of 40° C, if after ten or twelve hours no change is apparent, pepsin is absent.

Seventh, rennet. Rennet is tested for when atrophy is suspected. A few cubic centimeters of cows' milk of neutral reaction are well boiled, an equal volume of neutralized gastric juice added, and the whole placed on a water bath at a temperature of 30° C. After the lapse of thirty minutes, if rennet is present, the casein will be precipitated.

Eighth, proteids. Cold nitric acid will demonstrate the presence of albumen. Syntonin and peptone are determined with the biuret test. If albumen is present it must be removed before testing for peptone, to accomplish this, acidulate the contents with acetic acid, boil, and add ammonium-sulphate crystals until no more dissolve, filter, and to the filtrate add several drops of caustic-soda solution and a few drops of copper-sulphate solution—this produces a pink color, the intensity varying with the amount of peptone present. This test often gives a fair idea of the digestive activity of the stomach.

Ninth, carbohydrates. Starch is converted by the action of ptyalin into grape sugar, and cane sugar is partly changed to grape sugar. Compound tincture of iodine gives a blue color with starch, and with erythrodextrin a red color. One hour after a meal, neither starch nor erythrodextrin should be found in the stomach. If present, there is either a deficiency of diastase or an excess and a too early secretion of hydrochloric acid.

Now that we have given an outline of the analysis of stomach contents, the clinical side must be considered. The normal quantity of free hydrochloric acid secreted is about 0.2 per cent, but this may vary considerably under certain functional disturbances, persons of neurotic temperament do not always secrete the same percentage of acid, and I have seen it vary from 30 to 70 in the same patient. Hydrochloric hyperacidity cannot with certainty be determined after a test meal, for the reasons already mentioned. Ewald makes the statement that when acidity reaches 70 Cc of decinormal caustic-soda solution, he considers it a positive sign of hyperacidity. In my work I have found this not to be true. In neurotic patients and those suffering from gastralgia, I have often found an excess of acid after Ewald's test-meal, 100 Cc of stomach contents often requiring 70 Cc of caustic-soda solution, being 10 Cc above normal. Accord-

ing to Leube, the stomach should be empty seven hours after a meal. In hyperacidity, peristaltic action is lessened, and hence we have a stagnation. Such cases were ordered to call the next time with an empty stomach (ten hours after a meal), then if fluid matter of an acid reaction was found I felt sure it was a case of hyperacidity. This hyperacidity is usually due to some irritation. In two cases the stomach contents, drawn off ten hours after a meal, were of a green color, but when tested for bile the results were negative. Turck has made cultures of similar solutions and says the color is due to a form of algæ.

In several cases of chronic interstitial nephritis I have found hyperacidity, due in all probability to some urinary product not yet thoroughly investigated. In cases of uremia, urea has been found in the stomach. In two cases of hyperacidity I found albumen, but no peptone, twelve hours after a meal. The only explanation of this is that there must be a transudation of serum albumen from the hyperemic vessels, but still I am not thoroughly convinced of this and intend to follow it out in a later article.

In ulcer the hyperacidity is high, and we may say that if the hydrochloric acid reaches the 100 Cc. of caustic soda solution, with burning pain and other symptoms, a diagnosis of ulcer is justifiable. Often it is very difficult to differentiate between gastralgia and ulcer, as the acid may be present in large quantity in both conditions.

Subacidity usually occurs in subacute and chronic gastritis, but may be present after an attack of acute gastritis. Anacidity is present in acute and chronic gastritis and in cases of cancer, but one cannot on this symptom alone make a diagnosis of cancer. In chronic gastritis, pepsin and rennet are secreted in sufficient quantity, but it requires free hydrochloric acid to liberate them from their zymogen. In cancer the acid is usually wanting. Riegel claims that in cancer the digestive power is entirely lost, although it seems that the secretion of pepsin and rennet goes on to the end.

In atrophy of the stomach, digestion is entirely wanting, and no free hydrochloric acid, pepsin or rennet is found in the gastric secretion.

In senile atrophy we often have associated renal diseases.

[The standard solutions employed in these tests can be obtained, already prepared, from any chemical house — Stomach contents are more readily obtained by the use of the apparatus of Boas, in which the end of the stomach tube is connected with a bottle from which the air has been exhausted.]

BOOK REVIEWS.

PRACTICAL DIETETICS, WITH SPECIAL REFERENCE TO DIET IN DISEASE By
W Gilman Thompson, M D Octavo, 800 pages, illustrated New York
D Appleton & Co 1895

The subject of Dietetics is one that receives too little attention from the chairs of practice of medicine or of therapeutics in our medical colleges. Even our best works on general medicine give but scanty directions as to diet in the treatment of disease. The practitioner is, therefore, at the beginning of his career, repeatedly confronted by the perplexing problem of what food to give in the particular disease under treatment. He will welcome the volume by Thompson as an invaluable aid in such circumstances, and he will be gratified as he reads to think that from the ranks of American medicine has come forth a work at once so scientific and so practical. It is a work for the practitioner rather than for the student, it should be a reference book in every training school for nurses, intelligent laymen will find it so practical and so full of plain directions as to diet and food, and hints on cooking, that much of it might be read by them with interest and profit.

The portion of the work that will be most frequently consulted is undoubtedly the chapter (chapter VIII, pp 387-678) dealing with the diet in special diseases. The physician can, by reference to the full index, readily turn to the disease concerning the proper diet of which he wishes to learn. Here he will find, briefly given, an outline of the pathological condition underlying the disease, the advantages to be gained by the proper diet, and the dangers of other food articles. A very judicious division of space is given to the various diseases, those in which diet plays an unimportant part being hastily dismissed, while other affections, in which diet is of paramount importance, are discussed more in detail. For instance, one will find very complete dietetic directions concerning anemia, nephritis, gastritis, enteritis, gastric ulcer, chronic constipation, neurasthenia, obesity, diabetes, typhoid fever, tuberculosis. And the directions are so explicit as to have a positive value. The worth of the book would be much less had the author attempted to generalize more. Even at the risk of repetition he specifies accurately the food proper in a given disease, often with definite diet lists for each meal of the day, or even for each meal of the week. This makes the work extremely serviceable to the practitioner who desires to use it as a handy ready-reference book.

The author also works in, but not in an obtrusive way, many little therapeutic hints as to medicinal and remedial agents other than foods—hints that add to the interest and enhance the value of the book. Thus, he describes gastric lavage and massage, refers to gastro-diaphany as a diagnostic measure, and mentions with some fullness the use of electricity in the treatment of nervous and other diseases. He is not afraid, either, to be outspoken in his advocacy of, or opposition to, certain drugs. He condemns in plain terms "the whole lot of 'reduction pills,' concentrated salts and purges, extracts of phytolacca-berries, *Fucus vesiculosus*, and other so-called 'specifics' for reduction of obesity" as unscientific, if not positively harmful or dangerous. Infant foods, various preparations of pepsin, pancreatin, etc., are mentioned by the

name of their manufacturers, and one recommended as better than another. We expect to see soon on circulars accompanying our samples the statement that on the authority of Professor Gilman Thompson the product of the firm of X Y Z & Co. is far superior to that of A, B C & Co.

While the chapter relating to diet in special diseases is the one that will be oftenest referred to the preceding chapters are none the less interesting or instructive because in a measure theoretical and dealing with the question of dietetics largely from a laboratory standpoint. The fact is much of the practical part of the book is in these pages. Thus the question of the use of alcohol is largely discussed here. The author may be said to take a middle ground on the alcohol question while advocating its use at times in large quantities *e.g.* in fevers he says that its indiscriminate use in such diseases as pneumonia typhoid and scarlet fever is unnecessary and harmful. On the whole he believes it to be more of a 'blessing than a curse' for there is no form of stimulant and food combined or stimulant alone which, taken all in all can be so completely relied upon in cases of emergency.

On the vegetarian question he is outspoken. He strongly believes in a mixed diet. A mixed diet is therefore, the only rational one for man. He is a warm friend of cold white bread.

It would be a kindness to many a nurse, and a great benefit to her victim the patient if she were obliged to read before going out to private duty the general rules for the methods of feeding the sick (pp 369-383). The details concerning the serving of food to invalids the importance of personal neatness and of avoiding those trifling breaches of table etiquette that are so keenly appreciated by the sick one whose nerves and mind are now oversensitive are strongly set forth.

We commend also, not alone to nurses but to physicians as well the minute directions as to rectal feeding. Dr. Thompson will convert many a physician away from his skepticism as to the value of nutrient enemata back to a firm belief in their usefulness if only rightly given.

The work is written in a clear and pleasant style making it good reading even though some of the topics are popularly regarded as dry. An occasional grammatical or typographical error will be corrected in a second edition which will, we believe be soon demanded.

There is now and then a touch of humor even in a work of this character. Thus in order to emphasize the fact that hard boiled eggs are less easily digested than soft boiled Dr. Thompson gives a vivid description of the physical properties of this coagulated egg albumen—it is dense hard, dry and brittle. But he reaches his climax by telling us that 'when heated beyond the boiling point it forms a very tenacious, gluey substance which can be used as a cement for mending china.' One must pause hereafter before taking into his stomach any of this dense hard brittle material for fear of possible trauma and no one will venture to order any of the china cement for fear of producing pyloric or intestinal obstruction.

And there is something deliciously Johnsonian in the following recalling the lexicographer's definition of oats as the food of the people in Scotland but in England commonly fed to horses. Buttermilk is the residual milk left after churning and removing the fat. It is usually fed to pigs but it is wholesome and diuretic, and makes a capital beverage for those patients who fancy its peculiar sour taste.

We append the headings of the various chapters of the book, as this will furnish a better idea of the scope of the work than the meagre review which it is possible here to give Part I—Food and Food Preparations, 186 pages, Part II—Stimulants, Beverages, Condiments, 50 pages, Part III—Cooking, Food Preparation and Preservation, The Quantity of Food Required, 44 pages, Part IV—Food Required for Special Conditions, 15 pages, Part V—Food-digestion, Conditions which Especially Affect Digestion, 39 pages, Part VI—The General Relation of Food to Special Diseases, Diseases which are Caused by Dietetic Errors, 29 pages, Part VII—Administration of Food to the Sick, 17 pages, Part VIII—Diet in Disease 292 pages, Part IX—Rations, Dietaries, 86 pages, Appendix Recipes

JAMES B HERRICK

A GUIDE TO SYSTEMATIC READINGS IN THE ENCYCLOPÆDIA BRITANNICA By James Baldwin, Ph D The Werner Company, Chicago and New York

This little work is an attempt to make the Encyclopædia Britannica more than a mere work of reference, to be used now and then as one does a dictionary Not only has the author attempted to make the treasures of the Britannica available, but his work is so arranged as to stimulate one to a careful reading of the related subjects in this great repository We feel that the writer has done a signal service to those who possess the Encyclopædia but have only the vaguest ideas as to its contents

The book is divided into fifty-four chapters, dealing with every phase of life Chapter XXIV deals with The Physician, and shows how exceedingly rich is the medical storehouse of the Encyclopædia The history of medicine begins with an article on Æsculapius Then a description of medicine is given as set forth in the Homeric poems, after which comes a description of Hippocratic medicine, and of Hippocrates as the father of medicine This brings us to the Alexandrian school, after which follows a description of Roman medicine, with the biographies of Asclepiades, Galen, and Aretæus Then follows notice of the Byzantine school and Arabian medicine, with notices of Avicenna, Averroes, and Maimonides Medicine in the Middle Ages is described with the Period of the Renaissance and notices of Linacre, Rabelais, and Paracelsus The history of medicine is then continued down to 1878 in the biographical notices of John Kave, founder of Camus College, William Harvey, the discoverer of the circulation of the blood, Van Helmont, Borelli, and Francis de le Boe, Thomas Sydenham, the English Hippocrates and intimate friend of John Locke, "the great sensational philosopher" who was also a thoroughly trained physician and practiced medicine privately, Hermann Boerhaave, the organizer of the modern method of clinical instruction, George Ernest Stahl, originator of the theory of animism, Morgagni, first to make morbid anatomy a branch of medical research, William Cullen, John Brown, the originator of the Brunonian system and the last systematizer of medicine, Hahnemann, founder of the homœopathic school, Edward Jenner, discoverer of vaccination, Avenbrugger, inventor of the method of recognizing diseases of the chest by percussion, Laennec, inventor of the stethoscope, Erasmus Darwin and Richard Bright

Among the more important biographies of physicians are mentioned John Abercrombie, John Abernethy, Erik Acharius, J F E Acton, Alexander of Tralles, Prospero Alpini, Charles Alston, Johann Conrad Amman, John Arbuthnot, Neil Arnot, Aspasius, Andrew Combe, John Elliotson

There is a special article giving a synoptical view of medicine, and chapters on anatomy, physiology, hygiene, pathology, and surgery.

Among the shorter special articles we have those on Homœopathy, Hydropathy, the Germ Theory of Disease, Embryology, Anesthesia, Apoplexy, Bronchitis, Cholera, Croup, Dentistry, Dietetics, Digestive Organs, Diphtheria, Drowning, Fever, Gout, Gout, Heart Disease, Hydrophobia, Hysteria, Insanity, Jaundice, Leprosy, Longevity, Malaria, Measles, Neuralgia, Nutrition, Ophthalmology, Paralysis, Parasitism, Pharmacopœia, Phrenology, Phthisis, Plague, Pleurisy, Pneumonia, Poisons, Public Health, Quarantine, Quinine, Rabies, Scarlet Fever, Smallpox, Stammering, Diseases of the Stomach, Sunstroke, Throat Diseases, Typhus, Typhoid and Relapsing Fevers, Vaccination, Vascular System, Vesical Diseases, Veterinary Science, and Yellow Fever. The foregoing articles are carefully written treatises on the topics indicated and each is the work of a leading specialist. Of shorter articles the number is so great that the Guide cannot consider all of them but names thirty-seven.

We have reviewed the chapter on medicine thus fully to show the value of the Guide to medical men and also as an indication of the vast amount of medical lore contained in the Encyclopedia.

CATARRHAL DISEASES OF THE RESPIRATORY PASSAGES By J. M. G. Carter
M. A., M. D. Chicago E. H. Colegrove & Co. 1895

Some years ago the author was appointed reporter at Waukegan for the Illinois Weather Signal Service. During the time he was engaged in that work he became greatly interested in the manifest influence which changes in the weather exert upon the prevalence of catarrhal diseases. Many of the facts then obtained are recorded in this little volume, some of them having previously appeared in fugitive communications in periodical medical literature.

After studying the meteorological conditions in two hundred cases of catarrhal tonsillitis he comes to the conclusion that the disease under discussion like nervous disorders and rheumatism, is affected by if not due to the electrical condition of the atmosphere but whether to an excess or deficiency of electricity or to the preparation of a suitable culture medium for micro-organisms he has not sufficient data to determine. The disease prevails when there is a humid atmosphere, an excess of ozone, a lake wind, and a low temperature. It is also known that these agencies work changes in the electrical condition of the atmosphere and favor the growth of micro-organisms.

The author regards simple variability in temperature as the most important factor in the production of catarrhal laryngitis. After this he has found excess or deficiency of ozone increases the tendency to this disorder as it does to other catarrhal conditions of the respiratory organs. Excessive humidity, he thinks, increases the tendency toward passive congestion while active or arterial congestions are made worse by excessive dryness of the atmosphere.

Bronchitis, and its relation to broncho-pneumonia, form one of the most interesting chapters. In it we have a study of the distribution of these disorders in reference to climate, and some attempt at race differentiation. The paucity of data is apparent and the author wisely refrains from drawing any definite conclusions. In a general way his data support the conclusion that catarrhal pneumonia is much more common in damp and cold climates than in dry and warm ones.

Chronic bronchitis and catarrhal inflammation of the respiratory tract in relation to phthisis and pneumonia are considered in the closing chapters. The work is concluded by a short account of the treatment of pneumonia, and a few notes on influenza.

On the whole this little work is something of a contribution to the study of diseases which are very frequent in our lake region. It is to be regretted that the author has not confined himself more closely to a discussion based on his own observation and experience, which have been most abundant. The consideration of mooted questions in bacteriology only serves to encumber the text without adding to its value.

CLINICAL LECTURES ON DISEASES OF THE NERVOUS SYSTEM By W R Gowers, M D, F R S Philadelphia P Blakiston, Son & Co 1895

This small volume consists of twenty lectures delivered at the National Hospital for the Paralyzed and Epileptic. With two exceptions they have been reprinted from various English medical journals. They do not call for extended comment at this time, as most of them have been reproduced in periodical medical publications of this country. We are certainly indebted to the publishers for putting them in permanent and attractive form. In this way some of the important teachings of one of our most eminent neurologists will reach a deservedly wider audience than they have hitherto reached.

PATHOLOGY AND TREATMENT OF VENEREAL DISEASES By Robert W Taylor, M D Philadelphia, Pa Lea Brothers & Co 1895

The old-time work on Venereal Diseases by Drs Taylor and Bumstead was in its time one of the most valuable contributions ever made to surgical literature, but it has for some time been decidedly out of date. The profession will, therefore, welcome the new work by the junior author of the old treatise. It is hardly too much to say that Taylor's work is the best and most complete treatise upon venereal diseases at present before the profession. Exception may be taken to the criticisms which the author advances on the subject of strictures of large calibre. According to him, the maximum calibre of the urethra is 30 or perhaps 32 French. Considerable experience and careful observation have convinced me that this view is entirely erroneous. There is one point that Dr Taylor apparently overlooks, which is that the necessity of a cutting operation in the urethra, admitting that dilatation has been tried and has failed, is governed entirely by the probable relation of the coarctation in the canal to the existing chronic urethral discharge, or to symptoms referable to the prostate and bladder. I am satisfied, from an experience covering very many cases, that strictures which will admit a sound of 30 or 32 French, or even much larger, are often productive of very disagreeable results, which will not yield until a urethrotomy has been performed. There is no question but that the operation of urethrotomy has been too indiscriminately performed, and by men who are not to the manner born, as far as the technique of urethral operations is concerned. But this is by no means to be advanced as an argument against the operation. It is true also that disagreeable results occasionally occur even in the hands of the most expert operators, but I am not aware that absolute infallibility and freedom from untoward consequences is demanded of any other operation for the relief of disease. I fail, therefore, to see why the operation

should be condemned on this score. Of one fact the practitioner may be assured viz., that there are certain cases of urethral bladder and prostatic disease in which the urethra will admit a sound of 30 French or above yet in which the patient will not recover until a urethrotomy is performed.

It has been my experience that the men who are loudest in their condemnation of internal urethrotomy are those who do the least operating in all directions. I firmly believe that the so-called conservative dicta of Dr Taylor are likely to give the surgery of the urethra an impetus in the wrong direction. I do not believe that the results of Otis's labors will be entirely lost, no matter who crusades against them for the profession at large has become too thoroughly convinced of the truth of the major portion of Otis's teachings to be swerved by any writer no matter how prominent he may be.

Aside from what I believe to be ultra radical and somewhat erroneous views on the subject of stricture, I consider as already stated, that Dr Taylor's book is the safest and most comprehensive guide in its own special field at present before the medical profession.

G F LYDSTON

PROGRESS OF MEDICAL SCIENCE.

MEDICINE

UNDER THE CHARGE OF JAMES B. HERRICK, A.B., M.D.,
Adjunct Professor of Medicine, Rush Medical College, Attending Physician to the Cook
County Hospital, Chicago

Discussion of Acute Lobar Pneumonia —

At the meeting of the British Medical Association held in London July–August, 1895, Douglas Powell read a paper on Pneumonia that evoked an extended and interesting discussion. The paper and discussion are found in the *British Medical Journal* of Nov. 9, 1895.

The main points in Douglas Powell's paper are the following:

1. While many other zymotic diseases show a gradually decreasing death-rate, pneumonia still destroys annually about the same large percentage, its victims being too often vigorous and useful adults.

2. As factors in the causation of the disease, there cannot be overlooked the influence of (*a*) depressed temperature, (*b*) changeableness of temperature, (*c*) personal imprudence and unnecessary exposure to inclement weather, particularly on the part of the aged, (*d*) the sudden chilling of the surface of the body, (*e*) the existence of other acute infectious diseases, as tuberculosis, measles, pertussis, and influenza, or of depressing constitutional conditions as found in nephritis, diabetes, etc.

3. While a believer in the germ origin of croupous pneumonia, Powell regards as still *sub judice* the question as to which particular organism of the several regarded as pneumonia-producers is to be looked upon as the specific germ of the disease. He is a firm believer in the powerful etiological influence of the above-mentioned factors. Without these favoring conditions an individual may be germ-proof. With these conditions the pneumococcus may find a fertile soil and an easy victim.

4. Pneumonia is very mildly, if at all, contagious, and communicable from one person to another.

As elements of danger that require careful watching and special treatment the following are mentioned:

High fever "When the temperature ranges above 104° it is *per se* an element of danger." For hyperpyrexia the application of cold, quinine, or an occasional dose of phenacetin, may be employed.

Low temperature in pneumonia is more dangerous than a continuous elevation ranging between 102° and 104° . In fact, Powell inclines to the view of Cantani, that in an acute infectious disease such as the one under consideration a certain degree of fever, say 102° to 104° , is beneficial.

Pain Hot or cold applications are of limited value. Where the pain is due to pleurisy and not to the overdistention of the capsule of the lung, blisters or leeches are advisable. In the early stage morphia is of advantage, later it is to be given with great caution.

Cardiac failure This may be due to impaired pneumogastric innervation, when strychnine, caffeine or atropine is indicated. If due to insufficient and badly aerated blood supply to the heart, oxygen inhalations are of benefit. If there is an overdistended right heart, stimulants or blood letting may be employed.

Extending physical signs, giving evidence of an extension of the exudation, call for oxygen. Some good is in this condition obtained from the use of the tincture of the chloride of iron.

Powell regards the antitoxin treatment of pneumonia as still in the experimental stage.

J W Washbourn, in discussing Dr Powell's paper, affirmed his belief in the pneumococcus of Fraenkel as the cause of pneumonia. He further believes in the unity of this organism, though it may produce varied results according to the tissue invaded and the virulence of the microbe. Some pneumonias, however, he regards as spurious and not due to infection with the Fraenkel organism, in this respect presenting an analogy to true and spurious diphtheria. Many empyemata are probably primary pneumococcal pleuritides rather than secondary to primary pneumonias. The constitutional effects are due to toxins. The crisis is probably brought about by the development of antitoxins. He has great faith in the future of blood serum therapy in pneumonia.

Dr A G Auld also believes in the antitoxin theory, and called attention to the protective value of the leucocytosis so commonly present in the favorable cases. He regards our bacteriological knowledge of pneumonia as still quite imperfect.

Dr Dreschfeld drew attention to the peculiarities of influenza pneumonia. (1) At the time of an epidemic croupous pneumonia, due to Fraenkel's coccus, influenza pneumonia is very prevalent. (2) Patients with influenza are predisposed to take croupous pneumonia. (3) There is a pneumonia due to the influenza bacillus and which pathologically is in most cases, but not in all, lobular or

pseudo-lobar pneumonia Clinically atypical forms of influenza pneumonia are met with, such as wandering pneumonia, apex pneumonia, central pneumonia Purulent rather than rusty sputum, lysis instead of crisis, the presence of Pfeiffer's influenza bacillus in the sputum, the common occurrence of empyema as a sequel, are among the distinguishing characteristics of this form of lung-inflammation

Dr Pollock called attention to the importance of proving and controlling laboratory knowledge by clinical experience

Dr Foxwell reiterated his belief—first expressed nine years ago—in the specific constitutional character of pneumonia

Dr W J Tyson thought the different varieties of pneumonia should be designated always by proper preceding adjectives, such as alcoholic, septic, symptomatic, etc

Dr George W Balfour, after reviewing the many methods of treatment formerly in vogue, stated his own preference for digitalis in moderate doses, and chloral

Baumler advocated the application of cold baths as a symptomatic and curative remedial agent

T Clifford Allbut referred to the value of oxygen He also regards leucocytosis as of worth as a diagnostic sign

Dr G A Gibson looks upon the cases in which leucocytosis is marked as affording a more favorable prognosis

Dr J Sinclair Coghill argued in favor of a revision of terms

Francis Hawkins referred to the difficulty of recognizing by physical signs many cases where the symptoms warrant a diagnosis of pneumonia Traumatism was also an etiological factor not to be overlooked

D B Lees urged the judicious employment of the ice-bag, also the securing of sleep by means of drugs that do not depress the heart In the later days of the disease, when a small pulse, a congested or pale face, and great dyspnea indicate approaching paralytic distention of the right heart, he resorts to venesection

F M Pope urged the necessity of separating pneumonic patients from others, particularly typhoids, as he believes there is danger of the contraction of pneumonia by typhoid patients in the immediate vicinity of pneumonics

Shingleton Smith called attention to Petresco's treatment with digitalis

William Squire referred to the frequency with which croupous pneumonia attacked children, at least in Manchester

Remarkable Protractedness of Typhoid —

At a meeting of the Royal Academy of Medicine in Ireland, March 22, 1895 (*Dublin Journal of Medical Science*, October, 1895), two cases of protracted typhoid fever were reported. Dr. Ninian Falkner exhibited a temperature chart for 119 days. Dr. A. R. Parsons read the notes of a case with temperature chart extending over 290 days. No histories are given with the minutes of the meeting, so that the diagnosis rests solely on the statement of the reporters of the case. The consensus of opinion of those who took part in the discussion was that the cases had been typhoid, but perhaps with some undiscovered complication. No longer period of pyrexia was known to the members.

SURGERY

UNDER THE CHARGE OF WELLES VAN HOOK, A.B. M.D.
Professor of Surgery in Chicago Polyclinic.

Acute and Chronic Intestinal Intussusception —

Rydygier (*Deutsche Zeitschrift für Chirurgie*, band 42, heft 1 and 2), in discussing the subject of intestinal invagination, comes to the following conclusions in reference to the acute form.

1 Operation should be performed as early as possible after the bloodless therapeutic measures have been sufficiently tried without success.

2 After celiotomy has been made, disinvagination is preferable to all other procedures, if it can be carried out without special difficulties. If the intestinal walls are in a suspicious condition at the points of folding, iodoform gauze strips are to be passed down to them, or the part involved is to be excluded from the abdominal cavity.

3 Where disinvagination cannot be carried out, the resection of the invaginated part (after a manner more particularly described in the text) is regarded as the least serious procedure.

4 Resection of the entire invagination is appropriate when the invaginating sheath shows marked changes in its walls and a tendency to perforation.

5 The application of a preternatural anus and entero-anastomosis can find no place in acute intestinal invagination, as a rule. Only in very marked collapse would the application of a preternatural anus be justifiable.

In chronic invagination we are first to try repeatedly the bloodless therapeutic measures, but not for weeks at a time, bloody

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1. Operation should be performed as early as possible after the bloodless therapeutic measures have been exhausted and without success.

After celiotomy has been made disinvagination is preferable to all other procedures if it can be carried out without special difficulties. If the intestinal walls are in a very firm condition, attempts of folding iodiform gauze strips are to be given up. If the part involved is to be excised from the abdominal cavity.

Where disinvagination cannot be carried out the resection of the invagination (after a manner more particularly described in the text) is regarded as the least serious procedure.

Resection of the entire invagination is appropriate if the invaginating sheath shows marked changes in its walls and a tendency to perforation.

The application of a preternatural anus and entero-traction can find no place in acute intestinal invagination, as a rule. In very marked collapse would the application of a preternatural anus be justifiable.

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operation should only be attempted when the case is free from an acute attack after celiotomy, disinvagination may also be tried, and if this is not successful, resection of the invagination has the advantage over other operations

Dislocation of the Penis —

Dr L G Fischer, of the Indian Medical Service, reports in *The Lancet* of November 23, 1895, a case of dislocation of the penis in a Mohammedan child aged five years. The condition was brought about by a fall under a cart, sustained four days previously. The perineum, scrotum, and lower part of the abdomen were distended with urine, and gangrene was threatening. Cock's operation was at once performed, and the scrotum and other tissues were incised in various directions. Little notice at this time was taken of the state of the penis. Upon improvement of the case, the child was removed from the hospital, but in a few months was again brought back, and the penis was found apparently very much shriveled up, although it seemed to be normal. A catheter could be passed for a certain distance, but not into the bladder. Urine came in a full jet from the small opening above and to the left of the pubes.

Under chloroform a grooved director was introduced into the fistula, and the tissues were slit up to the extent of some two and a half inches. The glans penis then came into view at the lower end of the incision and at the base of the apparent penis, which was seen to consist of the mere outer covering of the organ. A catheter was then passed without difficulty through the glans into the bladder. The glans and corpora were dissected out from their new position, in which they had become firmly fixed, and were then drawn well forward. After the skin was slit up along the dorsum of the penis, and the end of the prepuce pared, the skin was brought together round the corpora and fixed in position with horse-hair stitches. A couple of months later the case was again seen, and it was found that healing had progressed satisfactorily and the penis was, in its normal position.

Crepitus in Bone Tuberculosis —

Dr Christian Fenger (*Annals of Surgery*, December, 1895), after adding his testimony to the beneficial effects of Brunst's iodoform-emulsion treatment of tuberculous abscesses in joints, relates the case of a man, aged 25, who entered the Emergency Hospital in January, 1893. On examination the right leg was seen to be slightly adducted and flexed, and exceedingly painful when moved.

It having been determined to evacuate the abscess and use iodoform treatment, the patient was anesthetized, but during the application of the anesthesia the usual nervous tremor occurred, and a sound could be heard all around the operating table resembling the chattering of teeth, or the noise made by sliding a stick along the palings of a fence, or a cane in the spokes of a wheel in motion, or a woodpecker hammering a tree trunk, as those surrounding the table variously described it. When the femur was moved with the hand, a similar crepitation was heard, as when two eburnated surfaces are pushed together—a sound like the click of billiard balls. The plan of aspiration and iodoform emulsion could not be carried out, and after the patient's consent had been obtained the joint was opened and the sequestra removed.

Dr. Fenger cites another case, occurring in the practice of Dr. Morgan, of Mercy Hospital, in which the same symptom was noted. It is probable that this symptom will occasionally be of use in diagnosing the presence of eburnated sequestra in tuberculous joints.

Gastro-anastomosis in Hour-glass Stomach —

Woelfler (*Beiträge zur Klinische Chirurgie*) had a case in a woman 36 years old, upon whom he performed a broad anastomosis between the two parts of the stomach, employing the usual technique (i.e., by sutures). The course of the case was favorable after the operation, except that singultus was a troublesome feature for a few days, in the first four days nutrition was accomplished by enemata.

The author states that great disturbances arise from the first stomach being smaller than the second, from the constricting scar between the two parts of the stomach drawing the greater curvature upward, so that the first stomach must lift itself up in order to transmit its contents beyond the scar, and easily becomes incapacitated from fatigue, from dilatation of the second stomach, and when the communication between the two stomachs is very narrow. He states that in several instances an axial deviation between the two parts of the stomach has been observed. The diagnosis is rendered easier by palpating the stomach after distention with gas to this is to be added the sound of splashing without stomach contents being regurgitated. Fluid running in disappears since it rapidly passes into the second part of the stomach, which cannot be sounded. There is a feeling of fullness, even after only a slight amount of nourishment has been taken. Hydrochloric acid has also

been wanting when examined for The treatment must be the resection of the cicatricial connecting tube, with subsequent gastrorhaphy, or pyloroplasty, or gastro-anastomosis

Intra-peritoneal Rupture of the Bladder —

At the close of an interesting article on this subject, in the *Annals of Surgery* for December, 1895, Dr C K Briddon, of New York, says " My present convictions are that the proper course to pursue in all cases of intra-peritoneal ruptures of the bladder is to open the peritoneum, close the rent in the bladder securely by closely applied silk sutures, irrigate the abdominal cavity with hot sterilized water, close only the upper portion of incision in its walls, filling the lower end with a tamponade of gauze passed to the bottom of the pelvis, drain the bladder by means of a large flexible catheter passed through a perineal incision, and maintained there by any device that fulfills the indication "

PATHOLOGY.

UNDER THE CHARGE OF LUDVIG HEKTOEN, M D ,

Pathologist to Cook County Hospital, Chicago,

AND

E R LE COUNT, M D ,

Demonstrator of Anatomy and Pathology, Rush Medical College, Chicago

Suppuration Due to the Typhoid Bacillus —

Dmochowski and Janowski (*Ziegler's Beitrage zur Path Anatomie*, bd xvii, p 221), from hundreds of experiments upon dogs, rabbits, and guinea-pigs, conclude that the typhoid bacillus may cause suppuration under nearly the same conditions under which other pyogenic bacteria do so Anemia, hydremia, trauma, the presence of cicatricial tissue or an inflammation, predispose to the location of typhoid bacilli and to a suppuration induced by them Death could occur, and often was produced, before local changes resulted from the experimental injection of pure cultures of the typhoid bacillus into various parts of the body In guinea-pigs and rabbits, suppuration in the form of subcutaneous abscesses was more frequently produced than in dogs Many control experiments were also carried on The changes observed when suppuration ensued were found to be identical with the changes encountered from the action of other pyogenic bacteria It was learned that abscesses due to other bacteria afforded a good point for the location of typhoid bacilli, after these latter had been injected into the general circula-

tion Not every kind of suppuration, however, afforded a favorable focus for such a location

A great many experiments had to do directly with the pathogenesis of post typhoid abscesses Among other facts deduced from the study of these it was ascertained that (1) a post typhoid abscess in which only typhoid bacilli are found, may have originated from a poly infection (other bacteria disappearing), or from infection first with the ordinary pus producing microbes, (2) a post-typhoid abscess in which only the ordinary pyogenic bacteria are found may have originated from the location at such a point of typhoid bacilli Cultures of living typhoid bacilli were injected into the joints, bone marrow, pleural and peritoneal cavities, and into other places, in some cases suppuration resulted Sterile cultures of typhoid bacilli were found to produce suppuration when injected into the subcutaneous tissues of rabbits, this result was attributed to a proteid substance contained in the bodies of the bacilli

Epitheliomas of the Testicle —

There are few questions in pathological anatomy so complex as those relating to malignant tumors of the testicle As each author dilates particularly upon the type he has himself studied, there results considerable graphic confusion in classic treatises With a view of clearing up some of this confusion, MM Pilhet and Coste have made a study of eight specimens from the clinics of Tillaux and others

The authors recognize three types as regards gross appearance

In the first the tumor is large, hard spots alternating with fluctuating areas on the surface, when opened longitudinally, the cut surface shows a stroma studded with cartilaginous or chalky nodules, and a large number of smallish cysts The contents of the latter are very variable—generally thick mucus, sometimes sebaceous matter, in other cases blood It is evident this is a tumor with multiple tissues, or a mixed tumor in which epithelial tissues predominate The testicle surrounds the tumor This variety is named "epitheliomatous teratoma"

The second variety, also surrounded by testicle, is always much smaller, for while the first type may sometimes reach the size of a cocoanut, this one is rarely larger than a turkey's egg Section reveals a thin connective tissue stroma, containing a great number of cysts no larger than a pin's head This is the cystic epithelioma of Malassez and Reclus The cyst contents are uni-

formly mucous, colloid, and may harden into small pearls (Velpeau) The authors call this species the "Wolffian epithelioma"

The third type, intermediate in size between the first two, and like them encapsuled by the gland, is a solid tumor which is only occasionally cystic—for instance, after hemorrhages On incision the connective-tissue stroma is found very thick and strewn irregularly with marbled spots, averaging eight or ten to the cut section, these are rather large, and each forms a capsule filled with a firm, yellow, homogeneous substance resembling a gumma, other capsules may contain a grayish, pulpy juice, with hemorrhages If the contents of these capsules be washed out in water, the envelope appears as an irregular, anfractuose pocket, filled with a very fine network of connective-tissue fibrils This form may be confounded with the syphilitic sarcocele, and especially the sarcoma and lymphadenoma of Malassez The authors give the provisional name of "seminiferous epithelioma" to this variety

After describing the histological appearances of the tumors in detail, the authors conclude there are three different kinds of epithelioma, all beginning at the same point, in the region of the corpus Highmorianum The development of the testicle throws considerable light on the development of these tumors

The origin of the testicle is easily traced in lower vertebrates such as the Plagiostomes It develops, according to D Herting, at the expense of the germinative epithelium of the coelom, which forms an inner band called the ovarian fringe, and an outer homologous with the gubernaculum of Hunter In the latter appear the spermatomeres, the primordial male cells, which sink into the depths of the band and form there the primordial germinative cords Then the development of the epithelium continues, these spermatomeres form others, spherical, isolated, with large nuclei, analogous to elements found in the seminiferous epithelioma

The epithelial bud of the Wolffian body arises in the same way from contact at the ampullæ or male tubes of Pflueger This bud sends out genital ridges which unite as a single canal with arborescent *culs-de-sac*, running in front of each ampulla The Wolffian canal, on coming into contact with the seminiferous ampulla, does not become covered as in the renal glomeruli; it seems to be simply absorbed, and the male tube of Pflueger, the seminiferous tube, becomes continuous with the excretory canal from the Wolffian body The junction is indicated merely by a constriction, which forms the separation between the testicle properly so called and that part of the Wolffian body which

becomes engaged under the tunica albuginea, forming the corpus Highmorianum

Thus there are two very different sorts of epithelium under the tunica albuginea at the top of the corpus Highmorianum, and these two sorts should come into contact to form the adult tubes. Here is where Cohnheim's theory comes into play as to the persistence of fetal spasts and their possible role in tumor formation. It is easy to see that Pflueger's tubes may not always meet the Wolffian canals—that there may be an excess of the latter or of the former. In most cases they atrophy, but they may also form tumors which will be epitheliomas. In one case a tumor of the Wolffian body, an epithelioma, will be formed, with cylindrical cells and evolution of cysts, in the other a solid tumor containing seminiferous elements in the stage of spermatomeres.

It is easy to see what becomes of the constituent elements of the gland. The contents of the seminiferous tubes remain and proliferate, forming the spherical male cells, but do not go on to the formation of spermatozooids. Their lamellar sheath is rapidly attacked and dissociated, and the tumors present two aspects according to whether this is more or less destroyed. If the sheath has mostly disappeared, the male ovules are circumscribed only by a thin connective layer, and become diffused in the surrounding tissue, if the sheath is more intact, it is still found infiltrated by small round cells, and instead of being close and firm it is reticulated.

The connective meshes and the partitions of the testicle, recognizable by their vessels, are thus found limiting the epithelioma. They are likewise full of small round cells, dissociating the tissues, the interstitial cells of the testicle have disappeared. It is impossible to say whether these small round cells come from proliferation of fixed cells or originate in the seminiferous epithelium itself. Those parts of the testicle which can be still recognized are atrophied and the connective tissue surrounding them is inflamed. This is the form that is often confounded with lymphadenoma — *Revue de Chirurgie*, 1895, No. 8

The Etiology of Suppurative Nephritis —

V Wunschheim, of Prague (*Zeitschr für Heilkunde* band xv) studied twenty four cases of suppurative nephritis for the purpose of obtaining a solution of some or all of the following problems in connection with this disease. 1. What differences are there between ascending and hematogenous nephritis? 2. Can an ascending

nephritis cause a general infection? 3 Do the common pus microbes play any part in the etiology of pyelo-nephritis?

The results obtained may be summarized as follows

1 Suppurative pyelo-nephritis, in the majority of instances, is caused by the bacterium *coli commune*, the minority being due to the proteus *vulgaris* and the ordinary pus microbes

2 In cases caused by the pus microbes a consecutive pyemia almost invariably results

3 The pyelo-nephritis caused by staphylococci and streptococci differs from the nephritis caused by the bacterium *coli commune* in being usually followed by pyemia, and in presenting greater disintegration of the tissue and less local proliferation

4 It seems quite reasonable that the typical anatomic picture of an ascending nephritis can also be produced by the way of descension—that is, by micro-organisms that are excreted from the circulating blood

BACTERIOLOGY

UNDER THE CHARGE OF GEORGE H WEAVER, M D,
Demonstrator of Bacteriology Rush Medical College, Chicago

A Case of Anthrax Septicemia Associated with Acute Anthrax Endocarditis and Peritonitis —

Drs George Blumer and H H Young (*Bulletin of the Johns Hopkins Hospital*, Nos 54-55, 1895) report an interesting case with the above title The infection occurred in a male, aged 59, at the site of a scratch near the eye, inflicted with his nail while working in South American hair Two days after the injury there was an edematous, boggy swelling, with an almost normal skin, on the lids of the right eye Upon making small incisions into the lids, a little thin, whitish, milky fluid escaped Cultures from this fluid showed a pure culture of the bacillus *anthracis* Two days later, upon admission to the hospital, both eyes were closed by edema, and there was edematous swelling extending over the whole right side of the face and neck, reaching up onto the scalp and down as low as the clavicle, and also crossing to the left side of the forehead The patient sank gradually, and died five days after the beginning of the disease Before death the edema had extended down the right side of the chest to the level of the pectoral fold, and to the tissues overlying the upper part of the sternum Marked cyanosis and loose watery stools preceded the fatal termination

The autopsy showed the following lesions The peritoneal cavity

contained 2000 Cc of turbid fluid. The serosa was injected, with ecchymoses of varying sizes beneath it, its lustre being lost. In the region of the pancreas was a large ecchymosis. Retro peritoneal and mediastinal tissues were edematous and swollen. The lungs were hyperemic and edematous. Along the free edge of the mitral valve, and less along the aortic segments, were several small elevations, covered by small red clots. In the pyloric region of the stomach was a large, deeply congested area in the mucous membrane, with some grayish yellow material adherent to its surface. The duodenum was uniformly congested. In the jejunum and ileum were small, elevated, deeply congested or hemorrhagic foci. Cultures from the heart's blood, spleen, peritoneum, liver, kidney, and lung, all showed a pure culture of the bacillus *anthracis* very virulent. A section of the heart valve through one of the recent vegetations showed the latter to consist of fibrin at its point of attachment, the body being made up of fibrin, granular material, red blood-corpuscles, polynuclear leucocytes, and a few epithelioid cells. Anthrax bacilli were numerous in the vegetation, but none were found in the valve itself. Numerous bacilli were found in the lesions in the stomach and intestine also in the vessels of the various viscera.

The authors consider the intestinal lesions as secondary to the skin infection, the bacteria reaching the intestine through the blood. They have been able to find only two cases recorded of anthrax endocarditis, both of them by Eppinger, in which there was an antecedent valvular disease together with a fresh endocarditis. In their case the valves were previously normal. Peritonitis due to the anthrax bacillus is also rare.

Pyemic Abscesses Caused by the Gonococcus —

U. Bujwid (*Centralblatt für Bakteriologie und Parasit.* 1895, bd xviii, p. 435) report the following case. A man 32 years of age, with a chronic gonorrheal urethritis—gonococci having been found present by microscopic examination,—developed a severe chill two days after catheterization. The chill was repeated during the following ten days. Following this four abscesses formed—near the left shoulder joint, in the right popliteal fossa, to the inner side of the left leg, and over the right external malleolus. All the abscesses were in muscles—none in the connective tissue or joints,—and a rather scanty odorless pus, of a reddish brown color, evacuated from them, was examined microscopically and by cultures. Under the microscope were found a few cocci which resembled

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Neisser's coccus, but were not especially characteristic. On a slant of solid serum-agar, after forty-eight hours' incubation, there occurred a growth of scant but distinct small colonies, which were recognized as typical cultures of the gonococcus. The cultures were without admixture of other cocci. In deep punctures in 2-per-cent glucose-agar, no anaerobic bacteria grew. This observation proves that the gonococcus belongs to the pus cocci, and that under some circumstances it may bring about a pyemic process.

Two Examples of Pathogenic Capsule-Bacilli (*Bacillus Capsulatus* of Pfeiffer)—

Wright and Mallory (*Zeitschrift für Hygiene*, 1895, xx, p 220) describe a bacillus isolated from the pus of broncho-pneumonia in a man of 40 years. It grew readily upon agar, bouillon, and potato, did not liquefy gelatin, produced coagulation in milk with the formation of an acid reaction. It was non-motile, did not form spores, and stained by Gram's method very slowly. They differentiate it from the pneumo-bacillus of Friedlaender, and consider it identical with the bacilli described by Marchand in croupous pneumonia, Paulsen in atrophic rhinitis, Abel in simple ozena, Mandry in the bronchial secretion of a paralytic, Dungern in septicemia in an infant, Nicolaier in suppurative nephritis, Fasching in the nasal secretion in influenza, Mori in canal water, and Pfeiffer in a guinea-pig which died spontaneously.

E. Wicklein (*Centralbl. f. Bakt. u. Parasit.*, 1895, bd xviii, p 425) described a similar bacillus in a case of chronic liver-abscess with perforation into the right lung, chronic purulent cholecystitis with perforation into the abdominal cavity, and chronic diffuse peritonitis. The liver abscesses, gall-bladder and peritoneal cavity contained abundant thick gelatinous material which on microscopical examination proved to consist essentially of bacilli with well developed capsules. The bacilli were isolated from these various locations.

THERAPEUTICS

UNDER THE CHARGE OF N. S. DAVIS, JR., A. M., M. D.,

Professor of the Principles and Practice of Medicine and of Clinical Medicine, Northwestern University Medical School, Chicago

Treatment of Pulmonary Tuberculosis by Specific Serum-therapy—

Professor Maragliano, of Genoa (*Medical Week*), says the organism is endowed with the power of combating and curing tuberculosis, as well as other infections. Vaccination, immuniza-

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Professor Maraghano, of Genoa (*Medical Week*), says the organism is endowed with the power of combating and curing tuberculosis, as well as other infections. Vaccination, immuniza-

tion and serum therapy are the natural outcome of efforts to assist nature in carrying on its defensive war against infection. This method of treatment originated in France, but so far serum-therapy of tuberculosis can scarcely be said to exist, the only efforts in this direction having been made by Richet and Héricourt (Paris), Babes (Bucharest), and Paquin (St. Louis). These investigators employed the method of vaccinating animals with cultures of avian or human tuberculosis, for the purpose of immunization.

For the last three years Maragliano has been experimenting with the object in view of obtaining a specific anti tubercular serum—that is to say, a serum presumably containing tubercular antitoxins. Such a serum he has obtained by methods different from those hitherto employed, by immunizing dogs, asses, and horses, using exclusively highly toxic substances extracted from virulent cultures of human tuberculosis, and capable of killing guinea pigs in two or three days.

In determining the potency of the serum thus obtained, he found that injections into a tuberculous subject, of tuberculin together with a sufficient quantity of the serum, were followed by no reaction, general or local, whereas the same quantity of tuberculin injected alone produced both general and local reaction. Anti tubercular serum has no specific pyretogenic property, the only thermic effects being those of the same quantity of normal serum of a healthy animal, or of artificial serum. While the usual therapeutic dose one or two cubic centimeters, determines no rise of temperature, larger doses may result in thermic reaction, which differs greatly in different individuals, but apparently not in proportion to the gravity of the disease in each case. Among other physiological effects of this serum are slower pulse and higher arterial pressure, increase in the number of leucocytes and red blood-corpuscles, improved nutrition, better appetite, and gain in weight amounting to as much as 14 kilograms.

He has treated by serum therapy eighty three patients suffering from pulmonary phthisis in all its forms, from the gravest to the slightest, with the following results.

In forty five cases of circumscribed foci, with but slight if any fever, and without any great admixture of other active microbes, all the patients were decidedly benefited, and all those (twenty nine in number) who underwent a systematic and complete treatment may be looked upon as cured.

In fourteen cases there were extensive foci of tubercular broncho-pneumonia, with or without fever, but with slight associa-

tion of microbes, all these were markedly benefited, some to such an extent as to suggest that perseverance in the treatment may result in effecting a complete cure

In fourteen cases of extensive broncho-pneumonia, with considerable admixture of other microbes, little if any improvement was obtained

Of nine cases of destructive broncho-pneumonia with cavities, two showed some improvement, consisting of reduction of temperature and increase in weight (one having since died, a year after treatment—the other was lost sight of), one improved considerably and is still under treatment, in four the disease remained stationary, two died

The improvement has been lasting when the treatment was continued long enough, and the author is inclined to think it permanent. Tuberculosis, however, like syphilis, may remain latent for a long time, then break out afresh, and again become latent. There is, consequently, room for difference of opinion as to what constitutes a cure, but as long as a patient on thorough examination presents no clinical signs of the disease, we are entitled to consider him as cured

With regard to what may be hoped for from anti-tubercular serum-therapy, it is obvious that no exaggerated expectations should be entertained of this or any other method of treatment when there exist profound lesions of tissues, caused by general infection, and when the organism is so deeply affected as to be unable to contribute to its own defense. No cure can reasonably be looked for, except in those cases of pulmonary tuberculosis in which there are as yet no destructive foci

The duration of the disease is only of secondary importance, the main points being the extent, intensity and histo-bacteriological nature of the pulmonary lesions. The association of diplococci and streptococci retards or altogether neutralizes the effect of the treatment

This treatment is applicable to all forms of tuberculosis, for, even if no improvement should follow, it will certainly never do any harm. As to its prophylactic value, no conclusions have been arrived at, though it might be assumed *a priori* that, inasmuch as a means of defense is thus introduced, this ought to result in stimulating the organism to act in repelling the infection

The technique of the method is as follows. Selecting a situation in which the subcutaneous tissue is loose, 1 Cc of anti-tubercular serum is injected every other day for ten days, then 1 Cc every day

during the next ten days, and, finally, 2 Cc, in two doses, daily for another period of ten days, continuing in this manner for at least one month after there are obvious signs of improvement, after which it may be advisable to inject one cubic centimeter a week for a year or so

When there is pyrexia, a large dose, 10 Cc for instance, is administered at once. If then the temperature does not rise again, a daily injection of one or two cubic centimeters is given after three days have elapsed, but, if the fever persists, another injection of 10 Cc is administered a week after the first

The Therapeutic Properties of Certain Metallic and Alkaloidal Iodates —

Dr Ruhemann (Berlin) has ascertained that various salts formed by this acid with metals and alkaloids constitute remedies of decided value.

Iodate of silver, administered by the mouth in doses of from five to ten milligrammes, is said to be an excellent astringent and intestinal antiseptic, exerting a rapidly curative effect in acute diarrhea, chronic enteritis, and intestinal hemorrhage. Far from exercising an unfavorable influence on the digestive function, the latter is said to be benefited by it.

Iodate of lithium, in doses of ten centigrammes, has been employed in the form of hypodermatic injections in cases of uric diathesis and nephritic colic. A few injections sufficed to prevent the production of precipitates of uric acid in the urine.

Iodate of mercury readily dissolves in water, in the presence of iodide of potassium. This preparation is perfectly stable for an indefinite period. Administered in hypodermatic injections it is an excellent remedy in syphilis. Dr Ruhemann employs a solution containing, in 10 grammes of distilled water 115 milligrammes of iodate of mercury and 8 centigrammes of iodide of potassium—that is to say, about one centigramme of the mercurial salt in a syringe-ful of one cubic centimeter. The injections are somewhat painful and should be administered at intervals of two or three days. They have been resorted to with success in the treatment of twenty-four patients at various stages of syphilis. The total number of injections required to effect a complete cure was usually twenty more rarely thirty, but the action of the remedy was manifested from the very first injections. The dose of iodate of mercury varied between 1 and 1.5 centigrammes per injection. The treatment was invariably well borne, and the remedy has much less tendency than other mercurial preparations to determine stomatitis besides exerting no

expulsion of calculi which have become arrested in the biliary ducts

This treatment may be continued over a long period of time, and does not lose its purgative effect. From 300 to 500 grammes (10 to 17 fluidounces) of pure olive oil should be given, and to attain success the injection should be made very slowly, repeated every day for the first seven days, and then gradually reduced at first to every two days, then to every three days, and so gradually dispensed with.

For both hepatic and renal colic the author recommends capsules of amyl valerianate and ether, containing three minims of each ingredient, two such capsules to be taken every half-hour until six have been taken in the day. Amyl valerianate has a sedative and stimulating action and in hepatic colic is said to be well-nigh a specific, not only suppressing the attack, but dissolving cholesterin and preventing the return of the trouble. In renal colic it is not so radical in its action, but is said to ease the pain of the attack.

Mercury in the Treatment of Anemia —

Uestari Ramevi (*Journal de Médecine de Paris*, July, 1895) says that in anemia, even in grave cases, subcutaneous injections of bichloride of mercury have given good results, increasing notably the number of red corpuscles, the proportion of hemoglobin, and progressively the alkalinity of the blood in proportion to its improvement in corpuscular elements. At the same time uric acid in the urine diminished, urea increased, urobilin, phosphates and the coefficient of toxicity diminished. General health simultaneously improved.

Uranium Nitrate in Diabetes Mellitus —

Samuel Work (*British Medical Journal*) asserts that this does not cure diabetes, but seems to control the secretion of sugar in a marked degree. He thinks its action may be due to its power of checking amylolytic digestion, and suggests that it will be most useful as an adjuvant in cases in which diet largely influences the amount of sugar, in these cases it may even lead to a complete disappearance of sugar from the urine.

Acetanilid in Tuberculous Sinuses and Abscesses —

Dr H A Wilson (*Philadelphia Polyclinic*, 1895, No 4) uses a 10-per-cent emulsion of acetanilid in sterilized sweet oil for injecting tuberculous sinuses and abscesses. His experience leads him to

consider it almost if not entirely, as efficient as a similar preparation of iodoform, though iodoform deposits more rapidly from oil than does acetanilid, and is thus applied more thoroughly to the cavity and sinus walls

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN, A.M., M.D.

Professor of Clinical Gynecology in the College of Physicians and Surgeons of Chicago;
Professor of Gynecology in the Post-Graduate Medical School Vice-President
of the Chicago Gynecological Society etc.

Cancer of the Pregnant Uterus —

At the eighth annual meeting of the Southern Surgical and Gynecological Association, Dr George H Noble, of Atlanta, Ga., detailed some interesting studies in uterine cancer, giving the histories of one hundred and sixty six cases which he had collected since 1896

According to the *Journal of the American Medical Association*, which gives an abstract of the paper, Dr Noble confined himself mainly to the statistics of the treatment and results, referring to Bar, Cohnstein and others for information concerning age, period of recurrence, period of abortion, etc. His conclusions are

1 That vaginal hysterectomy should be safe in the early months of pregnancy and the puerperal state, when there is a reasonable hope for the mother

2 That abdominal hysterectomy should be done when the uterus is too large to be rapidly and safely removed through the vagina.

3 That at or near the end of pregnancy, Caesarean section should be resorted to, when the child's interest is to be considered

4 That Caesarean section with Freund's operation, is possible when the disease is confined to the uterus and viable

5 That in doubtful cases, cutting of the cervix delivery may be judicious when the incision can be made in ulcerated or non infiltrated tissue.

6 That as there are four chances to one against the life of the fetus and as an equal number of mothers may be ultimately cured in the early stages of the disease, the safety of the fetus should not be allowed to hazard the life of the mother and that, on the other hand the futile efforts directed to the interests of the mother when her case is hopeless, should not jeopardize the safety of the fetus or the latter mother.

considered as not entirely as efficient as a similar preparation of iodine, though iodine deposits more rapidly from oil than does acetate, and is thus applied more thoroughly to the cavity and surrounding walls.

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN, A.M., M.D.,

Professor of Clinical Gynecology in the College of Physicians and Surgeons of Chicago,
Professor of Gynecology in the Post-Graduate Medical School, Vice-President
of the Chicago Gynecological Society, etc.

Cancer of the Pregnant Uterus —

At the eighth annual meeting of the Southern Surgical and Gynecological Association, Dr George H Noble, of Atlanta, Ga., detailed some interesting studies in uterine cancer, giving the histories of one hundred and sixty-six cases which he had collected since 1886.

According to the *Journal of the American Medical Association*, which gives an abstract of the paper, Dr Noble confined himself mainly to the statistics of the treatment and results referring to Bar, Cohnstein and others for information concerning age, period of recurrence, period of abortion, etc. His conclusions are

- 1 That vaginal hysterectomy should be safe in the early months of pregnancy and the puerperal state, when there is a reasonable hope for the mother
- 2 That abdominal hysterectomy should be done when the uterus is too large to be rapidly and safely removed through the vagina
- 3 That at or near the end of pregnancy, Cesarean section should be resorted to, when the child's interest is to be considered
- 4 That Cesarean section with Freund's operation is permissible when the disease is confined to the uterus and the child is viable
- 5 That in doubtful cases, cutting of the cervix and rapid delivery may be judicious when the incision can be made in non-ulcerated or non-infiltrated tissue
- 6 That as there are four chances to one against the life of the fetus, and as an equal number of mothers may be ultimately cured in the early stages of the disease, the safety of the fetus should not be allowed to hazard the life of the mother, and that, on the other hand, the futile efforts directed to the interests of the mother when her case is hopeless, should not jeopardize the safety of the fetus in the latter months of pregnancy

expulsion of calculi which have become arrested in the biliary ducts

This treatment may be continued over a long period of time, and does not lose its purgative effect. From 300 to 500 grammes (10 to 17 fluidounces) of pure olive oil should be given, and to attain success the injection should be made very slowly, repeated every day for the first seven days, and then gradually reduced at first to every two days, then to every three days, and so gradually dispensed with.

For both hepatic and renal colic the author recommends capsules of amyl valerianate and ether, containing three minims of each ingredient, two such capsules to be taken every half-hour until six have been taken in the day. Amyl valerianate has a sedative and stimulating action and in hepatic colic is said to be well-nigh a specific, not only suppressing the attack, but dissolving cholesterol and preventing the return of the trouble. In renal colic it is not so radical in its action, but is said to ease the pain of the attack.

Mercury in the Treatment of Anemia —

Uestari Ramevi (*Journal de Médecine de Paris*, July, 1895) says that in anemia, even in grave cases, subcutaneous injections of bichloride of mercury have given good results, increasing notably the number of red corpuscles, the proportion of hemoglobin, and progressively the alkalinity of the blood in proportion to its improvement in corpuscular elements. At the same time uric acid in the urine diminished, urea increased, urobilin, phosphates and the coefficient of toxicity diminished. General health simultaneously improved.

Uranium Nitrate in Diabetes Mellitus —

Samuel Work (*British Medical Journal*) asserts that this does not cure diabetes, but seems to control the secretion of sugar in a marked degree. He thinks its action may be due to its power of checking amylolytic digestion, and suggests that it will be most useful as an adjuvant in cases in which diet largely influences the amount of sugar, in these cases it may even lead to a complete disappearance of sugar from the urine.

Acetanilid in Tuberculous Sinuses and Abscesses —

Dr H. A. Wilson (*Philadelphia Polyclinic*, 1895, No. 4) uses a 10-per-cent emulsion of acetanilid in sterilized sweet oil for injecting tuberculous sinuses and abscesses. His experience leads him to

consider it almost, if not entirely, as efficient as a similar preparation of iodoform, though iodoform deposits more rapidly from oil than does acetanilid, and is thus applied more thoroughly to the cavity and sinus walls

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The Narrow Pelvis in Northern Germany —

A very interesting discussion upon the relative frequency of this malformation in North Germany was opened in the Obstetrical and Gynecological Section of the Congress of German Physicians at Lubeck (*Munch Med Woch*, No 39, 1895) with a paper by Schatz, of Rostock. This author affirms that the normal Caucasian pelvis does not correspond to the normal pelvis of the books. The symmetrical pelvis of the Caucasian race is less broad, more round. This type is seldom found in North Germany. The free clinic at Rostock tells a startling story of divergence from the normal, 9 per cent show narrow pelvises, 3 per cent uniformly narrow, $4\frac{1}{2}$ per cent flat (not rachitic), and 1 per cent flat and rachitic.

At Mecklenburg, owing to the recent influx of Polish female laborers, uniformly narrow pelvises are frequent. Pulmonary atelectasis is apt to develop among the larger infants of these mothers, when not still-born. Seventy per cent of cases with flat pelvises are delivered without assistance. Compression of the bones of the skull is less injurious than high extraction with arm presentation.

Prochownick (Hamburg) agreed with Schatz, but considered the uniformly narrow pelvis to be more frequent among degenerate families, and the flat among the poorer classes.

Fehling (Halle) did not see so much difficulty in high extraction from impaction of the arms, as from over-development of the head, and advised extraction in Walscher's hanging position.

Leopold (Dresden) said the narrow pelvis abounded in Saxony, and he had observed an increase in rachitis. The flat rachitic pelvis was very common, next in frequency came the uniformly narrow pelvis, and last, among the richer classes, the flat pelvis. He does not approve of version in primiparæ, when it can be avoided, and sanctions Walscher's position after extraction of the arms.

Remote Results of Hysteropexy —

M. Jeannel (Toulouse), in *Gazette de Gynécologie*, October, 1895, is credited with thirty cases of this operation for retroflexion with prolapsus. He performed the operation twenty-six times by the abdominal route, and of this series eleven women had also ablation of the adnexa. Silk and catgut were employed an equal number of times. With the non-absorbent ligature he had in four cases some slight accidents, nevertheless it is in his opinion preferable to the other, because by it the organ can be sustained for a long time. Of these twenty-six operations, it is only possible to give the remote results in eighteen cases. These are one failure, two ameliorations,

and fifteen definite recoveries. Three times pregnancy has supervened and delivery been accomplished without accident. Five times he has performed vaginal hysterectomy after the method of Mackenrodt for the cure of retroversion, but without influence upon the prolapsus.

The Influence of Castration on Metabolism —

Curatulo and Tarulli (*Centralblatt für Gynaekologie*, 1895, No 21), having made many experiments upon animals, have reached the following conclusions. The ovaries like other glands, have a secretion peculiar to themselves which is separated from the blood, but the chemical composition of which is at present unknown. It possesses the property of oxidizing phosphorous compounds, or those which furnish the lime salts of the bones. Hence after the removal of the ovaries in cases of osteomalacia there is an increased deposit of calcium and magnesium phosphates in the bones, thus restoring the normal firmness of the latter.

The increased deposit of fat observed after the normal and artificial climacteric may be explained by reference to the diminished oxidation of fat through the absence of the same secretion.

PEDIATRICS

UNDER THE CHARGE OF W. S. CHRISTOPHER, M.D.

Professor of Diseases of Children, Chicago Polyclinic. Professor of Pediatrics, College of Physicians and Surgeons, Chicago.

The Causation of Disease by Milk — The Means of Prevention —

Henry L. Coit, M.D., (*Dietetic and Hygienic Gazette*) says

It is probably true that the steady advance of civilization has been coincident with the failure of the race to nourish its young, and consequently, physicians and those charged with the foster care of the child have been confronted with conditions which make artificial infant feeding an important factor in the life of the race.

The failures recorded by physicians in their attempts to adapt to the uniform growth of the infant foods composed of milk which has been superheated, dried milk, cane sugar, malt sugar, dextrin, and unconverted starch, is a humiliating page in medical history.

It is an encouraging sign of progress that greater uniformity already prevails in the methods employed by the profession when a substitute for woman's milk is required. This is apparent in the fact that the best and most advanced thought is now firmly anchored to fresh cow's milk, as the basis for all rational artificial

except in electrical science It is Insulation, in contradistinction to Isolation and Disinfection—these latter having hitherto been regarded as the *summum bonum* of preventive measures,—for in this field isolation is often impracticable, and disinfection is at best a subterfuge

The measures which may be applied to the production of milk will best be illustrated by a brief outline of the purposes of a medical commission recently organized, and now engaged in active work in Essex County of this State, with what measure of success remains to be seen This commission proceed on the supposition that a purely commercial institution never gains the ear nor secures the support of the scientific world Their purpose is chiefly to influence the production and proper handling of milk intended for clinical uses, which they seek to accomplish by a rigid legal supervision of methods imposed by them upon a reliable dairyman

The code of requirements is stringent and binding It includes ample sureties for its fulfillment, necessary forfeiture clauses, a territorial limit for the sale of the product, provision for the compensation of experts employed by the commission, namely, a chemist, a bacteriologist, and veterinary surgeons It controls the character of the land used for pasturage and the cultivation of fodder, determines the construction, location, ventilation, and drainage of buildings, provides for abundant and pure water-supply, and prevents the use of water from wells or springs holding surface drainage It requires in the stable cleanliness and order, and disallows the keeping of any other live stock except the cow within three hundred yards of the dairy buildings It regulates the health, consanguinity, and breed of the animals, excludes any that are judged by a competent observer to be tuberculous or found in a state of ill-health prejudicial to the herd It forbids the use of phenomenal milkers until glandular diseases have first been excluded, provides for proper housing and shelter of the animals, together with their grooming and kind treatment, and the prompt removal of waste products from the stable It regulates the feeding with reference to the desired result in the product, and restrains the use of all questionable or exhausted materials for food It governs the collection and handling of the milk by insisting upon a proper regard for cleanliness as viewed by the physician and sanitarian, as it relates to the animal, her surroundings, the milker, the vessels, and the association of persons handling the milk with sources of infection It controls by minute specified requirements every step in the collection of the milk and its preparation for shipment, and adds to the

product every detail of care known to promote its keeping qualities or favor its safe transportation

The early application of heat is probably the most effectual means of preserving milk, which it accomplishes by destroying the bacterial contaminations. The terms "sterilization" and "pasteurization" have been employed to indicate the different degrees of heat used. When thus treated the milk is insulated in glass bottles. The former procedure, or sterilization at a high temperature, is designed to effect a complete destruction of all bacteria with their spores, while pasteurization is sterilization at the lowest possible temperature, and is designed to render the milk innocuous without injuring its nutritive values by overheating. It is moreover a fortunate circumstance that the thermal death point of all known disease producing bacteria is below that which has an injurious effect upon the milk itself.

The measures which may be applied to the protection of the individual are also governed by the principle of insulation. To fortify the digestion, to secure a healthy mucous membrane in mouth and throat, to elevate the health line to par or above it is to render the child largely immune from disease—it is to raise impregnable guards against the inroads of infection and the child, thus shielded, passes unharmed in the presence of danger.

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.

Professor of Neurology in the Chicago Polyclinic. Consulting Neurologist to the Illinois Eastern Hospital for the Insane.

The Thyroid Gland and Exophthalmic Goitre —

Ever since the definition of exophthalmic goitre as a morbid entity by Graves, in 1835 the pathology of the affection has been illuminated principally by ingenious hypotheses, never by positive discovery. These hypotheses have been eloquently advocated and cleverly defended by their several followers only to be for the most part, gradually abandoned and almost forgotten. Of late years the two most generally accepted by clinicians and pathologists refer the disease to a disturbance of the sympathetic system and medulla oblongata respectively, with the majority supporting the latter. But recently a new conception of the disease has been presented by vigorous and able supporters, namely that of its thyroid origin.

More than thirty years ago Piorry persistently claimed that the

wise been applied to Graves' disease, and Brissaud believes that as the former is now known to be always "symptomatic of something," so the latter were better considered as arising from one or more of a number of etiological factors

It would be premature—burning the bridges behind us—to adopt any exclusive theory of the nature of the disease. Perhaps the most constant element in the etiology of exophthalmic goitre is a neurotic heredity. The author agrees with Charcot that this is *never* absent, and considers the fact a strong argument in favor of the nervous rather than the thyroid origin of the disease, as it is not easy to class an auto-intoxication due to glandular defect among hereditary nervous affections. Then, too, "there is not a single neurosis which may not be combined with Graves' disease," indeed, it is exceptional that a case of this disease runs its full course without being complicated with outspoken hysteria, asthma, epilepsy, neurasthenia, or neuralgia, all of which speaks in favor of a neurosis and against a toxemia.

To explain the not infrequent complicating psychoses, the "thyroid theory" suffices fully as well as the "nervous" one, for at this time the word "toxemia" covers all symptoms. Cases that originate from powerful emotions—fright, anger, etc.—and from traumatism, cannot be accounted for by the thyroid theory except through the intervention of the nervous system. Some cases are seemingly caused by infectious diseases, and these diseases are known to always cause changes in the thyroid gland, but they are exactly the same in the cases which do not develop exophthalmic goitre as in those which do, so that something in addition to discoverable histological changes must be invoked to explain the latter.

The position of the "thyroid" advocates may be defined by the following quotation from Joffroy: "The only difference between the theory of thyroid intoxication and that of a neurosis is that, instead of attributing the numerous nervous troubles of Basedow's disease to an indeterminate, unknown cause, they are referred to a blood change comparable to some albuminurias and glycosurias, in a word, we have to do with a disease due to an alteration in the blood arising from the abnormal action of an altered organ." In support of this theory it is claimed that a simple goitre may eventuate in Graves' disease, and that this disease is relatively frequent in the localities where ordinary goitre is endemic. Brissaud argues against the justice of these claims, and in our opinion shows, at least, that more evidence is needed to establish them. He says with reason that even if Graves' disease were relatively frequent in goitrous families,

it would not necessarily show the dependence of this affection on the goitre, for these families are essentially degenerate and abound in mental and nervous stigmata—idiocy, imbecility, cretinism, hysteria, epilepsy, and insanity.

As to the pathological changes in the thyroid admitted to be always present in exophthalmic goitre he finds that they present no characteristics peculiar to this disease. This conclusion is based on a careful study of the findings of Joffroy and Achard, Revmond Greenfield, Grainger Stewart Gibson, and others, and upon the careful examination of two thyroids from cases of exophthalmic goitre, and of twenty five from adults who died from other causes. This histological study was exhaustive and the results are given in detail, but we must confine ourselves to conclusions. Although he finds nothing specific in the thyroid changes in exophthalmic goitre, he does find that the extent of such changes as serve to multiply the secretory surfaces of the gland is vastly greater than in other affections. This makes an abnormal activity of the gland and consequent 'hyperthyroidation,' possible, although Brissaud contends that this does not always occur in Graves disease. Further, it may be true that this hypersecretion could result from a hyperactivity of the epithelium, without increase in the elements, due not only to increased neuro secretory innervation, but perhaps also to vaso motor influence. But of this nothing is seen at autopsy, and it is suspected more than demonstrated.

The author then adds, without comment the recent findings and conclusions of Renaut, who found in Graves' disease a disappearance of the intra lobular lymphatics, normally so abundant, and concluded therefore that the thyroid secretion must be absorbed directly into the blood, where, not having passed through the lymphatic system, it acts as a poison.

He next carefully passes in review the cases in which exophthalmic goitre complicates, or arises in the course of, epilepsy, hysteria, chlorosis, locomotor ataxia syringomyelia, scleroderma chorea and insanity, and is thereby forced to the conclusion that these cases speak distinctly against a purely thyroid origin of the disease. On the other hand, the bulbo-pontine theory signally fails to explain the occurrence of various forms of insanity which complicate Graves' disease. The cases of exophthalmic goitre which are to all appearance due to various derangements of pelvic and abdominal viscera, to lesions of the nasal cavities etc., and are cured by the relief of those affections, are also exceedingly difficult to explain.

LARYNGOLOGY AND OTOTOLOGY

UNDER THE CHARGE OF W E CASSELBERRY, M D,
Professor of Therapeutics and of Laryngology and Rhinology in the Northwestern University Medical School, Laryngologist to Wesley Hospital, etc.

Suppuration in the Accessory Cavities of the Nose —

Dr Ziem, of Danzig (*Journal of Laryngology, Rhinology, and Otology*, November, 1895), has had an enormous experience, aggregating some five hundred cases, in operation for empyema of the antrum of Highmore, has himself been a sufferer from this disease, and advocates the method of Cooper to the exclusion of other operative measures—that is, the opening of the antrum through the alveolar arch, either through the socket of a tooth or through the palatal process of the maxillary bone, along the inner border of the teeth. Regarding the second objection to Cooper's method, so frequently brought forward—that an opening in this situation provides too little room,—he states his views emphatically. He has devised a force-pump for the copious and rapid irrigation of the cavity through the small opening. He declares that the injection of small quantities of fluid by means of a bulb-syringe is inadequate through any opening, the use of a gravity-douche irrigator is also tedious. The following table will show the capacity of the force-pump as compared with that of a douche irrigator. One liter of water is discharged in the time specified.

	By Force Pump	By Douche Irrigator
With nozzle of $\frac{1}{2}$ Mm bore.	in 5 to 6 minutes	in 42 minutes
With nozzle of 1 Mm bore	in 2 minutes	in 10 minutes
With nozzle of 2 Mm bore	in 40 seconds	in 1 $\frac{3}{4}$ minutes
With nozzle of 3 Mm bore	in 20 seconds	in 30 seconds

The douche being connected with a straight tube 11 meters in length.

Dr Ziem uses much larger quantities of fluid in the irrigation of the antrum than is usual in this country, and perhaps to this may be due his better results.

Regarding washes, the water should be boiled. Ziem has given up the addition of all disinfecting and bactericidal substances—even borax, formerly employed, being abandoned, owing to the cardiac and general weakness frequently noticed even in robust patients by its long-continued application. He now makes use of only $\frac{3}{4}$ - to 1-per-cent solution of common salt or sea salt. Common salt, and the chloride of magnesium in sea salt, exercise a by no means incon-

siderable antiseptic action. Besides there is no fluid so well borne by the nasal mucous membrane as a solution of common salt. He is opposed to the introduction of drainage tubes, for the reason that they act as foreign bodies and increase the hyperemia of the mucous membrane and the secretion. Current opinion favors drainage tubes, and our author fails to state how he maintains patency of the opening through months of time when necessary. He attributes the filling of the antrum with granulations in certain cases to the irritating effect of drainage tubes. If one is unsuccessful in treating empyema of the antrum through the alveolar process with washes, or by the dry method of iodoform gauze, it is permissible to make a large opening into the sinus through the anterior wall, preferably by means of a trephine fitted to a dental engine. In four out of five patients on whom he used the chisel and mallet for this operation, unconsciousness supervened in consequence of the direct extension of the shock to the brain. In two cases of opening through the anterior wall, considerable swelling of overlying soft tissues subsequently appeared. He does not consider curetting necessary in all cases, and in recent inflammation of the antrum especially it is to be avoided.

As causes of unsuccessful result the following are formulated (1) Diseases of the teeth that have escaped notice, (2) damp, musty dwellings, and impure air generally, (3) action of alcohol and tobacco, (4) catching cold.

The attempt that has lately been made in various quarters to underrate the role played by diseases of the teeth can only be attributed to inadequate experience.

Diseases of the Mouth, Nose, and Throat, as Etiological Factors in Chronic Glandular Gastritis, with Bacteriological Studies —

It has been observed that pathogenic micro-organisms may be swallowed and still no infection of the stomach or intestine be apparent, but let some error of diet, abuse of alcohol, or irregularity of living, take place, and the mucous membrane will form a fertile soil for the development of the tiny beings. All micro organisms that excite inflammation are not necessarily pyogenic even those of lactic acid form toxins that cause "catarrhal inflammation." Many of the micro-organisms found in the mouth while they do not produce pus, nevertheless induce inflammation as in gingivitis marginalis. The same group may be able to set up a chronic inflammatory process in the stomach. The teeth in the process of decay show a large variety of mixed infection, these micro organ

isms are carried by the food, after mastication, into the stomach, where many of them may be again recognized, and in cases of gastritis are found in colonies growing upon the mucous walls

Fenton B Turck, M D, (*New York Medical Journal*, Nov 23, 1895) reports cases in which catarrhal inflammation of an advanced type existed in the nose and naso-pharynx, associated with chronic gastritis, and in which bacteriological study demonstrated the same organisms in the stomach as were found in the naso-pharynx, correction of the nasal and naso-pharyngeal disease led to amelioration or cure of the stomachic affection

These investigations have covered a period of three years. Cultures were made from the nasal and post-nasal cavities, as well as from the stomach walls, and an attempt was made to find the relation between naso-pharyngitis and chronic glandular gastritis, for clinical evidence in many cases pointed to infection of the stomach from the post-nasal cavity. It was not until two years ago that the author was able to secure cultures from the different areas of the nasal cavities, as well as from the stomach, without contamination of adjacent parts, this he now accomplishes by means of the gyromele, which he has modified for use in the nares. He concludes

- 1 Clinical observation in many cases indicates a marked relation between diseases of the mouth and post-nasal cavity and chronic inflammation of the stomach and intestines

- 2 The invasion of the stomach from the infected mouth and pharynx is supported by the fact that in cases of gastritis many of the known pathogenic micro-organisms present identical biological and morphological forms with those found in diseases of the mouth and post-nasal cavities of the same patients

Pathological Changes in the Labyrinth —

Professor Politzer, of Vienna, describes (*Journal of Laryngology, Rhinology, and Otology*, November, 1895) labyrinthine disease due to suppurative inflammation of the middle ear and to malignant disease inside the skull, and also the ossific changes and the narrowing of the vessels which occur in syphilis. Tuberculosis primarily affecting the labyrinth, he has not yet seen. The author reviews his demonstrations of last year of chronic capsulitis of the labyrinth leading to the obliteration of the fenestra ovalis, which occurs in sclerosis of the middle ear and was clinically recognized as such. He is prepared to believe that in time the term "sclerosis of the middle ear" will give place to that of "chronic capsulitis."

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF W. L. BAUM M.D.,

Professor of Dermatology and Syphilology in the Post-Graduate Medical School Chicago
Fellow of the Chicago Academy of Medicine.

Digital Chancres —

In the *Journal des Mal Cut et Syph*, 1895 (*Clinical Reporter*, St. Louis) Fournier describes three varieties of chancre of the finger—the hypertrophic, the fungoid, and the panaritic. The hypertrophic chancre takes on an abnormal volume which has much the appearance of a tumor and is often taken for a malignant growth. The fungoid chancre has been described by Taylor as composed of vegetations which cover the primary lesion, this is a rare form. The panaritic is much more frequent, and its phenomena are almost identical with those of panaris, from which a differential diagnosis is often difficult. Of forty nine cases of digital chancre observed by Fournier, fourteen were subsequently treated for tertiary lesions, some of which were extremely serious. This is a very large proportion, as a certain number of the forty nine had not been seen since the appearance of the initial lesion. According to Fournier, the subsequent history of cases of digital chancre is not necessarily grave. It can however, become so from the fact that the nature of the primary lesion is often unknown by reason of its seat, and usually the treatment is tardily begun and inadequately carried out. Digital chancres are observed especially among physicians. Of the fourteen grave cases seen with tertiary lesions, ten were found in physicians. Therefore, from a medical point of view the doctor is particularly liable to infection. He lives at a high tension, both intellectually and physically and is either negligent or is apt to try to do too much owing to superabundance of advice and consultants. The doctor should always take the necessary precautions to prevent contamination of the fingers. Nevertheless, infection may occur instantaneously. M. Julien states that a doctor who had brought his blistered finger in contact with a mucous plaque of the scrotum, immediately washed his hands with an antiseptic solution, and notwithstanding this precaution a chancre appeared four weeks later upon the affected area.

With reference to the question of extra genital chancres, Fournier cites facts which demonstrate various modes of contagion in the most unexpected localities. A four year-old child having fallen and sustained contusion upon the knee, the attendant applied a small

piece of plaster, wetting it with her tongue, one month later a chancre appeared, followed soon after by serious secondary lesions. A little girl became syphilitic after being wrapped up in the chemise of a sick mother. Again, contagion can be propagated by the use of bathing-suits, clothes, and the wearing of woolen gloves which have been worn by syphilitics. Fournier has seen a lady acquire syphilis in which the initial lesion occurred upon the hip as the result of the use of hair gloves in one of the greatest establishments of hydrotherapy in Paris. He also cites a mode of contagion of which but little is known, although it is relatively frequent, namely, by means of public closets, this might be called "water-closet" syphilis, the chancre develops upon the gluteal region or the upper part of the thighs. What facilitates this method of contagion is, that a large number of syphilitic patients dress their sores in these public closets, without paying any attention to contamination of the seats.

Tumenol in Skin Affections —

Neisser (*Journal de Médecine de Paris*, December, 1894) gives a *résumé* of the properties and the indications for the use of tumenol, as follows

- 1 In weeping eczematous surfaces, where there is not too active inflammation, the surface becomes rapidly dry. The same result follows its application in burns of the first and second degree.

- 2 Tumenol has no irritating action, and does not increase inflammation. *Per contra*, it rapidly diminishes the hyperemia and the exudate.

- 3 It has no deep action upon chronic infiltrations.

- 4 Its apparent action upon these diseases is characterized by diminution of the itching, not only in eczema and parasitic diseases of the skin, but also, although to less degree, in prurigo and pruritis.

- 5 Tumenol is useful as a covering to superficial and deep ulcerations, in ecthyma, in the fissures present in eczema, and in large ulcers of the legs.

- 6 It has no general constitutional action.

It can be applied as moist dressings, in an aqueous solution containing 2 per cent of tumenol—useful in acute relapsing cases of eczema, in tumenol paste, 5- to 10-per-cent, or tumenol powder, 5- to 10-per-cent, and oxide of zinc and starch to make 100, in superficial ulcerations, in lupus, in the contagious form of impetigo, and in pemphigus, tumenol solution—5 grammes tumenol, and 15

grammes each of sulphuric ether, alcohol, and distilled water or glycerin—may be used for suppurating ulcers, tumenol plasters are also employed. The natural oil of tumenol can be used with advantage in humid and vesicular eczema. The acid powder of tumenol sulphate can be used in the pure state in cases of eczema or can be mixed with lard or with powdered zinc.

Excretion of Mercury through the Sweat Glands —

The absence of positive information upon this subject in medical literature led Mironovitch to make a series of experiments upon a number of patients to whom mercury was being administered in some form (*Med Oboz*, No 12, 1895). A Roman bath at 75°–80° C (167°–176° F) was used for twenty minutes to induce perspiration. The author concludes that the elimination of the drug through the perspiration is much greater than has hitherto been supposed. A relatively larger quantity was excreted by the sweat than by the urine, but only in cases in which mercury was introduced into the system by friction a short time before. Thus the author explains by the retention of the drug in the sudoriparous glands of the skin, friction causing it to be pushed into these glands before it has time to enter the blood. In patients treated by injections, the quantity in sweat and urine was the same.

Mironovitch expresses the opinion that when it is necessary to relieve the economy of an excess of mercury, this can be effected through increased perspiration — *Universal Medical Journal*, November, 1895.

OPHTHALMOLOGY

UNDER THE CHARGE OF HENRY GRADLE, M.D. CHICAGO

Large Electro Magnets for the Extraction of Iron Chips from the Eyeball —

While the portable electro-magnet introduced by Hirschberg about eighteen years ago has proven a very serviceable instrument for the removal of iron fragments from the eyeball, there are certain cases of injury in which it fails. If the foreign body is not visible in the vitreous, there is no certainty that the magnet will reach it, and extensive ploughing of the vitreous in its search is a dangerous procedure. So too, when a small chip has penetrated the cornea and iris and has passed around the border of the lens without wounding the latter, the magnet tip cannot follow it and entrance through a fresh scleral incision is a doubtful method unless the chip is seen.

In order to supplement the portable electro-magnet, Haab began experimenting three years ago with very large magnets animated by a high-tension current from a dynamo. These large instruments are not portable, and the patient must bring his eye against the adjustable tip attached to the pole. The action of a strong magnet upon chips in the eye often produces severe pain which is of diagnostic value, but which is not invariably present. Up to the present, fifteen cases have been operated upon, with variable results, by different authors.

Schmidt-Rimpler reports (in the *Berliner Klin. Woch.*, Oct 7, 1895) his experience with a large electro-magnet, each branch 16 centimeters in diameter, around which circulated a current of 16 amperes. An iron hook, 5 grammes in weight, was held by the pole with a force equivalent to more than 16 kilogrammes. This electro-magnet was used in six cases of foreign bodies in the interior of the eyeball, in three of these a perfect result was obtained, with vision as nearly normal as could be expected after such injuries, in three the method failed—that is, it did not prevent the loss of sight and the occurrence of a violent inflammation. In no instance did the electro-magnet fail to extract the foreign body.

While admitting the advantages of Hirschberg's portable electro-magnet, Schmidt-Rimpler claims that a large stationary instrument may be of service for the extraction of chips which are not visible, and the exact location of which is not known. Where the conditions are such that the chip can presumably return through the wound of entrance, the tip of the magnet is caused to touch the wound while the patient's eye is steadied with fixation forceps. If necessary, the wound is enlarged. If the fragment, however, has entered the eyeball through the cornea and has passed around the border of the lens, Schmidt-Rimpler advises to draw it towards the peripheral angle of the anterior chamber and subsequently to enlarge the corneal wound, or, if necessary, establish a fresh one closer to the foreign body, and then by the reapplication of the electro-magnet to extract it. If extraction proves difficult, he prefers to use a small portable electro-magnet for the final removal, after having first withdrawn the chip from the depth of the eyeball by means of a large instrument. [The reviewer has in one instance attempted the removal of a chip present in the vitreous, and not visible, by bringing the eye against the pole of a ten-horse power Edison motor, the drawing power of which was about equal to the magnets used by European oculists. The experiment did not prove successful.]

The Treatment of Retinal Detachment.—

At a recent meeting of the Ophthalmological Society of the United Kingdom (reported in the *Medical Week*, Nov 22, 1895), Dr Wray made some suggestions regarding the treatment of this serious and almost hopeless condition. Since some benefit is at times obtained by complete rest, it is the rule to insist on the patient's occupying the recumbent position for some weeks. This method alone often fails. Wray, therefore, advises to make a scleral puncture with a narrow knife at once, as this involves no danger and is by itself sometimes successful. Following this operation he then orders several weeks of quiet rest in the recumbent position. Unfortunately, however, he has but two cases to report, and in neither of them was the method a complete success, though it gave fair improvement.

In the resulting discussion ten speakers, all prominent English ophthalmologists, reported their experience, and of this number but one (Dr Little) could refer to two cures accomplished by the operation in detachment of the retina. Of the other nine speakers, not one had ever seen any permanent benefit produced by operative measures of any kind although several had seen spontaneous recoveries, or recoveries during rest and under the use of pilocarpine.

In the July number of the *Annales d'Oculistique* (English edition), Dr Terson states his experience with the application of electrolysis in twelve cases of detached retina. He uses as positive pole a fine platinum-iridium needle with which he penetrates the sclera, the other pole being applied to the skin, and a current of 5 milliamperes being employed for a period of one minute. Of the twelve cases, one recovered fully and remained so while under observation nine months; five patients showed improvement which persisted after nine, six, three, and two months; two cases were not influenced, and one—an old one—was aggravated by chronic cyclitis. Terson does not advise the operation in cases of detachment which have existed longer than two months.

The Etiology of Phlyctenular Inflammation of the Conjunctiva and Cornea.—

In his search for the presumable parasite of phlyctenular inflammation, L. Bach (Von Graefe's *Archiv für Ophth*, vol 41 II, p 159) made cultures from the contents of the vesicles on the surface of the eyeball and found thus the presence of the familiar staphylococcus *aureus*. In his earlier researches it was however, found but

once in twenty-one instances, while in all the others no microbes could be detected. In continuing his work Bach learned later on that the staphylococcus does not persist more than one to two days in each phlyctenula, and that if the vesicles are not examined in this period of time they will be found sterile, while within the first two days the microbe is abundantly present. Its importance was, moreover, proven by reproducing characteristic phlyctenulæ in animals by means of punctures of the conjunctiva with needles infected with this microbe. In four human eyes the same experiment was repeated with success, a vesicle following the inoculation after four to ten hours. Cultures made from the experimental phlyctenulæ were always positive, if taken before the end of the third day, after this time they, too, were unsuccessful.

The eczema of the lids and face which is so often seen in children with phlyctenular ophthalmia, Bach attributes to the influence of the same staphylococcus. He regards the conjunctival disease as secondary to the eczema, being probably produced by inoculation by means of the finger. His researches harmonize well with clinical observation. [To the reviewer it seems probable that if a phlyctenula does not disappear within the typical period of a few days, it is the result of secondary infection.]

The same subject is discussed by Gordon Norrie in the October number of the *Centralblatt für Prakt. Augenheilkunde*—not, however, from the bacteriologic, but from the clinical point of view. In confirmation of previous statements made by him and others, he again insists that a frequent condition leading to phlyctenular disease is the existence of pediculi capitis, and that their removal tends to stop the relapses of the eye disease. He thinks that the lice act by causing scratching until excoriations of the scalp set in, that these necessarily become infected, and that further scratching will spread the pus microbes on fingers, from which they are transferred to the conjunctival surface.

FORENSIC MEDICINE

UNDER THE CHARGE OF M. D. EWELL, M. D., LL. D.,
Dean of the Kent Law School, Chicago

A Malpractice Suit —

A malpractice suit recently decided in Milwaukee, Wis., is of interest in several particulars. The trouble grew out of the accidental leaving of a rubber drainage-tube in the pleural cavity. A physician, the defendant in the case, was treating a young man,

aged sixteen or seventeen years for empyema. An operation had been performed—a resection of one rib—and drainage provided for by means of two properly placed tubes. These were secured in position by two silk stitches, each stitch passing through a tube and the skin. The wound discharged freely for several days. Upon one occasion, in dressing the wound, the doctor, having gathered up the soiled gauze and thrown it into the stove, noticed that one of the tubes was missing. The dressing had been removed in such a way as to lead him to think that the tube might possibly have been thrown into the stove along with the soiled dressings. Examination with probes and forceps failed to locate the tube in the empyemic cavity. The gauze was burning or burned, and it was difficult to decide positively where the missing tube was. Another complicating circumstance was the fact that on the day previous to this the dressing had been changed by the mother of the patient and in the absence of the doctor. Under these circumstances it was not deemed best to enlarge the wound or make other incisions to look for a tube that might have been thrown into the fire or otherwise lost outside of the boy's chest. The wound healed in about the usual time, and convalescence seemed fairly established. Some months later, however, there was a slight purulent discharge through a fistulous opening in the wound, and the boy was told that a second operation would probably be necessary.

The patient then consulted a second physician, by whom he was sent to a hospital and operated upon. Resection of three or four ribs was deemed necessary, and in the discharge thus liberated was found the missing drainage-tube. The patient recovered, and suit was then brought against the first physician for \$20,000, claiming damages for long illness and permanent deformity.

The case was tried three times. In the first trial the jury did not agree. In the second the plaintiff was given a verdict for \$2,000, in the third the judge threw the case out on the ground that the plaintiff had not shown in the trial that his illness and disability were due to lack of reasonable skill and care on the part of the first physician.

Thus final outcome of the case, although not precluding the possibility of further litigation, meets with the very general approval of the local profession.—*Medical News*

When May Gonorrheals Marry?—

Lowenhardt (*Jour. des Connaissances Médicales*) gives rules for the guidance of physicians consulted by blennorrhagics to gain con-

sent to marry, says the *Virginia Medical Monthly*. As the virulence of the urethral secretion depends upon the presence of gonococci, the candidate for marriage should be subjected to repeated bacteriological examinations, carried out separately on the secretion of the anterior and that of the posterior urethra. A slight secretion is not sufficient for this purpose, but the urethral mucosa must be irritated in such a manner as to place it in analogous condition (excess in *baccho et venere*) to those which light up an indolent case. The best means to obtain this result is to inject a few drops of a $\frac{1}{6}$ -percent solution of silver nitrate. If then the secretion contains no gonococci, but is strictly made up of epithelial cells, marriage can be permitted. The presence of numerous pus corpuscles necessitates renewed examinations and treatment of this pseudo-gonorrhea. Lowenhardt insists that the gonococcus is alone responsible for the virulence of the exudate and the serious results that follow inoculation with it in the genital apparatus of women.

The Medico-Legal Relations of Epileptiform Inebriety —

T. D. Crothers (*Cincinnati Lancet-Clinic*, September, 1895) states that no medical witness can rationally affirm sanity of epileptiform inebriates in any broad sense, or assume such cases to be of sound mind and with reasonable power of control. The resemblance to epilepsy in the periodical explosions and states of brain-poisonings are like so many traumatisms and concussions, steadily and constantly impairing the power of judgment and reason.

In all these cases the facts to be determined are: The periodicity of the drink attacks, the mental conditions which preceded or followed them, the character and conduct of the case in the free interval, for purposes of comparison, the act in question, the time, and the condition of the man when it was committed, the facts of heredity, and probable degree of mental vigor and health, together with the present state of the patient's mind and body.

A study of these facts will most naturally bring out a clear conception of the mental condition of the man, and his degree of sanity and soundness, with consciousness of the act and power of control at the time.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints or, if they so elect, an honorarium will be paid for original communications.

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ORIGINAL ARTICLES

ON THE NERVOUS AFFECTIONS CAUSED BY THE POISON OF GOUT *

BY DAVID INGLIS M D DETROIT MICH

We have long recognized the poisonous effects of drugs We are familiar with the fact that the ingestion of exceedingly minute quantities is capable of producing the most profound alteration in the functional activity of the nervous system or the circulatory apparatus That a susceptible individual shall be profoundly affected by the hundredth part of a grain of atropia, excites no surprise. We are prepared to explain a vivid scarlet rash, or a threatening vaso motor paralysis, as a result to be expected from a single dose.

But it is only of late years that we began clearly to recognize the importance of the poisons generated in the body It is becoming more and more clear that toxic alkaloids equal in virulence to known medicinal alkaloids can be self generated Furthermore, these self generated poisons are so numerous and so commonly present that we cannot fail to agree with Mr Darwin, who, on having his attention called to the constant risk of poisoning by the products of our own digestion, said ' It is a wonder that we are alive.'

The poison which has been longest recognized by the profession as thus self generated is uric acid •

The relationship of uric acid in the causation of gout has long been known, and can be looked upon as fully established, nevertheless it may still be profitable to review our knowledge of this substance and its source of origin

* Read before the Michigan State Medical Society June 1895.

For a long time it was believed that uric acid was a direct product of the metabolism of muscular substance, that its formation in the body was proportional to the activity of muscular use, that great muscular activity meant a great increase of uric-acid formation and excretion. When the pedestrian Weston started out to walk a thousand miles in a thousand hours, it was naturally expected that such enormous muscular activity, and so regularly carried out, would cause a corresponding increase of uric-acid formation, but the results of constant urinalyses were disconcerting. First of all, the net increase of uric-acid formation and excretion was not proportional to the amount of exercise, and second, the excretion was subject to marked variations, while the muscular activity never varied from hour to hour.

In searching for a cause of this variation, Flint found that the amount of uric acid excreted varied according to the amount of nitrogenous food ingested. After a meal of vegetables or farinaceous foods the quantity of uric acid was low, after a good beefsteak it was abundant. The experiment demonstrated that the free use of meat, game, or highly nitrogenized food caused a rapid increase in the amount of uric acid excreted.

Haig, in his recent work on uric acid, has given the most beautiful elucidation of the formation and excretion of uric acid, and most clearly points out one other and a most important factor in this study. It is this. The amount of uric acid to be found in the urine at any time does not vary in exact correspondence with the amount of nitrogenous food ingested, for the analysis of the urine, while it gives account of the quantity of uric acid *excreted*, does not reveal the amount of uric acid which is retained in the system. It is, of course, evident that the poisonous effect of the uric acid depends upon the retained, not upon the excreted, salt. I cannot but enlist your interest in Haig's work, which, while it fully corroborates the work of Garrod and others who have preceded him, has the great merit of carrying us much further in the physiology of uric-acid formation than had hitherto been done. We may summarize the matter thus. The metabolism of our own muscles steadily forms uric acid, but this formation is but slightly modified even by considerable exercise. Were there no other source of uric acid, the kidneys could easily excrete it all, and accumulation would be practically impossible.

By far the greater quantity of uric acid in the system comes from the nitrogenous food taken in, and every effort seems to be made to rapidly excrete the salt thus thrown into the blood.

Uric acid is easily soluble in alkaline blood—almost insoluble in acids,—hence in proportion as the blood is alkaline it dissolves the uric acid, carries it to the kidneys, and so favors its excretion. Any physiological change in the body, or any drug, which tends to increase the acidity of the blood lessens the excretion and favors the precipitation of uric acid in the tissues. The precipitation tends to occur in tissues in which the circulation is least active.

When such accumulation has gone on till a certain saturation of the tissues with insoluble uric acid is reached we begin to find the toxic effects of the drug. Uric acid is a poison which is cumulative in its effect. It is for this reason that the earlier symptoms of uric acid poisoning are so commonly overlooked. Nevertheless, such gouty affections are extremely common, and many a neurotic patient is neither more nor less than the victim of intemperance in the use of meats.

Here I must stop to enter a protest against an idea which seems to prevail uniformly in the lay mind, and largely in the professional—that a good, nourishing diet is equivalent to a meat diet. Nothing could be further from the truth. In a growing child the amount of proteid substance required for the rapidly increasing tissues is, of course, considerable, and a meat diet undoubtedly furnishes this in a form readily accessible, but in an adult, in whom the body weight has reached a standstill, such need of albuminoid food does not exist. Now the fact is that even in a child the amount of albuminoids needed for growth can very readily be obtained from vegetable foods. A child that gains twelve pounds in weight during a year is growing very rapidly. It is entirely unnecessary to give to a child, growing even as rapidly as that from one to two hundred pounds of meat during the same period. Indeed if you will call to your recollection the children who are voracious meat-eaters you will usually find that they are neither robust nor rapidly growing but of the slender and nervous type.

If, then, children who are adding to their albuminoid tissues rapidly do not need much meat, how much more so is it with adults who have ceased growing!

Probably the simplest demonstration of the fact that the daily supply of albuminoids to the adult can easily be furnished by a vegetable diet is presented by the building of the Union Pacific Railway. The building of a railway over the Rocky Mountains involved probably as great and exhausting muscular activity as any labor could. Yet this was accomplished by Chinese coolies who lived

on a purely vegetable diet, unless we except the luxury of a little rat's flesh on high holidays

I feel the necessity for this digression for the reason that my greatest difficulty in persuading my patients to cut down their use of meat is the fallacy that only meat is truly strengthening. On the contrary, the use of meat as it is carried out in our country is both unnecessary and injurious, unnecessary because the finest physical vigor can be kept up on a very small allowance of meat, and injurious, because the only effect of putting an excess of meat into the system is to add to the amount of labor to be done by the liver and kidneys. The man who sits down to a fine dinner is simply taking in enormous quantities of uric acid, and his liver and kidneys have a busy time in promptly getting it out again.

One of the lasting absurdities of medical practice is the administration of beef-tea. Beef-tea is practically an infusion of uric acid. Concentrated beef-extract consists of uric acid to the extent of 88 per cent of its bulk. Our grandmothers' domestic use of fresh urine was no more absurd than our use of meat-extracts—simply a little less palatable.

Instead, then, of thinking of a diet rich in meat as peculiarly nourishing, it is nearer to the truth to think of it as a stimulating diet, and to regard the person who takes it as eating a considerable quantity of uric acid which he must sooner or later get rid of. If he fails to do so completely, he accumulates in his tissues a poison from which he will hear later on.

The reason that this relation of ingestion of uric acid to disease is not commonly recognized is that the effect is not immediate. The excess of uric acid is taken care of in two ways. As soon as it is ingested, the liver and kidneys and skin set to work to excrete it, and in healthy and vigorous persons they practically do succeed in excreting it all.

"The amount of urea cast out daily is calculated to be 512 grains, of which about 100 is eliminated by the skin."

This explains why men who work hard and perspire freely can eat meat foods *ad libitum* without bringing on gouty symptoms. They take the uric acid in and immediately pass it out. The red flannel shirt contains a good deal of yesterday's beefsteak.

But let such a man break a leg, or be suddenly obliged to cease his usual activity, while still continuing to take in uric acid, the excretion of the acid being lessened, he turns toward gout. The workman promoted to be foreman is in double danger. His increased wages tempt him to a richer diet, *i. e.* more meats, and

his decreased activity slows down his excretion. He does not at once become gouty, for the second way in which excess of uric acid is taken care of is going on—namely the uric acid is stored up in the tissues. Not until the accumulation has reached a certain point of saturation does the protest of nature become loud enough to be heard.

All the time that the accumulation has been going on, nature has been trying to adjust herself to it. The uric acid in the blood has kept the arterioles more or less constantly in a state of contraction. The high arterial tension has slowly resulted in a hypertrophy of the arterial walls and a corresponding hypertrophy of the heart, the actual blood supply to the different organs and tissues has been growing less although the full, hard pulse and florid face seem to indicate the contrary. The kidneys secrete less actively, and the accumulation of uric acid increases more and more rapidly on that account. The acid is deposited in the tissues in which the circulation is least active, and when the point of saturation is fully reached the patient has an attack of gout—"old fashioned gout."

In this country a case of old fashioned gout is a rarity. I have no doubt that many of my hearers have never seen a typical, inflamed, gouty toe. Nevertheless, gout is probably quite as common a cause of disease in the United States as in England, although our national habit of life is too restless to allow our rich men to sit still and develop old fashioned gout.

The object of this paper is to call attention to the poisonous effects of gout upon the nervous system, the more particularly because a recognition of gout as the cause will often permit of a speedy cure of serious and threatening nervous affections. It would really lead to the writing of a paper far beyond the limits granted to enumerate all of the nervous affections which are caused or kept up by the gouty poison. Their variety is great because the gouty poison, circulating with the blood affects all parts of the nervous system, the point of diseased action varying in different individuals. I will confine myself to certain distinct and frequent manifestations of gout.

A prominent lawyer introduced himself to me after this fashion: 'I have been sent to you on account of this heart of mine, but I wish to tell you beforehand that I do not wish you to give me any more digitalis. I have been taking digitalis for five months, and my heart has hammered and run just as hard as ever in spite of it.'

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what is practically immunity from a disorder which, at one time, bid fair to cripple me, and prevent completely all mental and sedentary work, not that the headache was confined to periods of sedentary work, for I have often had to give up portions of a day's shooting because my head was too bad to stand the noise and concussion of firing, and yet this was in the open air in the country, and when a book had probably not been opened for weeks, and under conditions which were infinitely more favorable to health than those in which I now exist and have immunity. But if I at any time forget my lesson of the past, and presume on my apparent security from attack—if I dine with two or three friends in the same week, and especially if I take both meat and wine, of the action of which I shall speak presently—I am practically certain to have a more or less severe headache in two or three days' time, though, as will appear further on, I can generally prevent the intense pain from which I used to suffer in former days. Having arrived, then, at the conclusion that leaving off butcher meat had practically relieved me of headache, I began to ask why this was so, and at first¹ I was inclined to attribute it to the formation of some poison, possibly of the nature of a ptomaine, in the intestines during the digestion of the butcher meat. But a further study of the clinical history of migraine brought out such a strong relationship to gout that² I began to suspect that uric acid might be the poison of which I was in search, and I therefore proceeded to estimate the excretion of uric acid and urea."

In migraine and uric-acid headache we are dealing still with the effects of the poison upon the circulation. The cause seems to be clearly a contraction of the arterioles—heightened blood-pressure and a lessened blood-flow through the capillaries, with the necessary result of an impaired nutrition of the area supplied. In spite of the blood-pressure, there is an essential anemia behind the arterioles.

Closely connected with the nervous affections just noted is the mental change of hypochondriasis or of melancholia.

In both of these conditions the relation of the mental state to the liver has been known from antiquity—indeed, the names denote the relationship. At the present time we might dispute whether the liver, the stomach or the kidney is the offending organ, but inasmuch as all three of these organs are intimately associated in the taking up, the formation, and the passing-out of uric acid, it is probable that we can cut the knot by simply saying that the failure

* *Practitioner*, 1884.

† *Ibid*, 1886

of one or all of these organs which leads to the presence of an excess of uric acid in the blood may, and frequently does, cause extreme mental depression

I hardly need to give a typical case—almost every practitioner before me could furnish an account of a case of hypochondriasis or melancholia which went through varying phases of deepest gloom and comparative well being. The administration of some calomel or some mineral acid brings the patient out into the sunlight, only to relapse into despair when the uric acid, which the calomel or the acid drove out of his blood back into his tissues, begins to be dissolved again by the alkaline blood. The doctor and patient finally lose heart and lose confidence in calomel, and justly so, for the calomel or the acid does not remove the uric acid from the body, but simply keeps it in the tissues for the time being. As long as the blood is not full of soluble uric acid the patient is happy.

When the patient is removed to an asylum he begins to get better, and I suspect that his improvement is due to systematic exercise and a diet in which, for economic reasons, nitrogenous food does not preponderate. He no longer loads up with so much uric acid, and by increasing bodily activity he gets rid of part of what he had previously accumulated.

There are all grades of mental depression which can be traced to this cause, and the pessimism of great capitalists, lawyers and doctors is probably quite as much due to the good meat which they eat, as the optimism and lightness of heart of the Irish peasants are due to the meat which they don't eat.

Among other nervous diseases in which uric acid plays an important part is to be mentioned epilepsy. Just as in migraine eye strain and lithemia sometimes act conjointly as causes, and the patient will not get better until both causes have been removed, so in epilepsy I believe that uric acid acts very commonly in conjunction with some other (often reflex) cause. There are cases in which it seems pretty clear that the uric acid alone is capable of setting up epilepsy. Whenever I come on a case of epilepsy which has suddenly developed after the age of thirty in a well fed, well to-do professional or business man, I strongly suspect gout, but the more common history is this. The patient has a fit at long intervals, keeps at his work, but a fit occurring in some public place he inspires a feeling of dread in his associates, loses his position, ceases to work, but continues to have an excellent appetite as epileptics are apt to do. Now, whereas before he had fits at long intervals, he soon has them at shorter and shorter intervals. Whatever may

have been the prime cause of the convulsions, I believe that the rapid increase in frequency, which so often comes on when the patient ceases active work, is due to the gout. The proof lies in the remarkable results which can be won by changing the diet so as to stop putting in uric acid, and adopting such means as will help to dissolve and excrete the uric acid which has accumulated. Bromide of potash is not the only drug to be used in epilepsy. A vigorous course of salicylic acid sometimes has a marvellous effect.

I presume the disease of the nervous system which is more commonly due to gout than any other is hemiplegia, but the mode of action is indirect. The uric acid has caused high arterial tension, a hardening of the arteries, and a hypertrophied heart. Finally, a cerebral artery degenerates, a clot forms and occludes it, or the artery ruptures. This is truly a gouty affection, but my paper is intended to call attention to the nervous affections more directly caused by uric acid.

There is a form of transient cerebral paralysis which is not uncommon. An elderly person feels a numbness in one arm and leg, it passes off quickly, leaving no vestiges, from time to time it recurs, always on the same side. There may be with it a similar transient motor paralysis. Such a condition is not infrequent, and seems to be due to a spasm of an artery, probably already narrowed. The well known action of uric acid in contracting the arteries furnishes an explanation of such cases.

It is well to remember that old people can be gouty even when they eat very sparingly of meat. The excretory functions in the old go on badly, and gout is not due to the uric acid taken in, or the uric acid sent out, but to the balance which has accumulated.

There occur from time to time cases of apoplexy or hemiplegia in which the post-mortem examination shows no visible lesion whatever. While I have no means of demonstrating the truth of the theory, I cannot but adopt as the most reasonable theory this one, viz. The patient has been accumulating uric acid in the tissues, he is saturated, the blood, becoming thoroughly alkaline, dissolves a large quantity of uric acid, and blood so surcharged overwhelms the cerebral cells with the poison. It is a case of acute auto-intoxication occurring in a person already saturated with uric acid.

One more form of nervous affection due to gout deserves mention as being of very frequent occurrence. I refer to peripheral neuritis. The poison causes neuritis of all grades up to those of the severest forms, such as sciatica, and forms accompanied by muscular atrophy.

An English lady in comfortable circumstances, who inherited from her father a love of outdoor life, and who would at once attract notice for her evident fine physique and physical vigor, consulted me on account of her fear of paralysis. She was strong enough as yet, but the numbness and prickling in her legs seemed to her a serious menace. At night this became an intolerable itching, which prevented sleep. All sorts of external applications had proved futile.

She was given some salicylate of soda, and cut off from the use of meat and eggs, which was a hard sorrow to her, for she said that there was really nothing left to eat. When told that she need have no fear of paralysis, but that she had the gout, she recalled the fact that her father, whom she strongly resembled in habits and tastes, had suffered severely from it. After trial of her new diet, so firmly was she convinced that she could suffer or be free from her itching and numbness at her own will that when I saw her a few months later I learned that for a period of four months she had tasted no meat or eggs.

For the benefit of those, and they are many, who always think of meat foods when they think of "a good, nutritious diet," I may say that my patient, when I saw her last, remained the same fine, strong, well looking woman as she appeared at first. But she had learned the great lesson that

'Gout is the disease of those who will have it''

ANGEIO-NEUROTIC EDEMA *

BY WILLIAM L. BALLENGER M D,

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Angeio-neurotic edema is a so-called disease characterized by an acute, circumscribed, non-inflammatory swelling or edema, of transient duration. It has been variously named—according to the writer's idea of its etiology, pathology, or symptomatology—acute circumscribed edema, acute idiopathic edema, essential edema, periodic swelling, urticaria tuberosa, giant urticaria or giant swelling, acute non-inflammatory edema, etc

Symptoms—The edema appears suddenly—sometimes with, and sometimes without, prodromal symptoms,—and is transient. A common seat is the face, the eyelids being most frequently affected. The lips and cheeks may also be involved. The Schneiderian membrane, the pharynx, uvula, epiglottis, larynx, and lungs, may be the seat of swelling. The hands, arms, legs, genitals, and trunk—indeed, any of the mucous membranes and any portion of the skin—may be selected as the site for edematous swelling, although it seeks by preference the most lax parts. It may appear in one part, and later in another. It is usually associated with other symptoms or diseases, as hay fever, urticaria, headache, gastro-intestinal disturbances (as watery vomiting and colicky pains), itching and redness. In Matas' case a distinct periodicity was present, the edema recurring regularly between 11 and 12 A M daily, in this case the toxin was undoubtedly the malarial organism.

Etiology—The etiology may be studied under the following subdivisions

1 Predisposing causes, as (a) heredity, (b) previous and present condition of disordered health, (c) overwork, either mental or physical, (d) exhaustion from disease, exposure, or exertion, and last, but not least important, (e) the neuropathic taint.

Age seems to have some influence in causation, as but few cases have been reported in either early childhood or advanced age. Sex may also exert some influence, but from the present data I do not feel warranted in classifying it as an etiological agent. In Germany and France two females to one male have been reported, while in

* Membership thesis, read before the Chicago Academy of Medicine, Dec 13, 1895

England and America the number is about equally divided between the sexes

2 Exciting causes are (*a*) exposure to cold, (*b*) gastric irritation from ingestion of certain foods, as shell fish, strawberries, etc., (*c*) puberty, (*d*) climacteric, (*e*) masturbation at unstable time of adolescence, (*f*) trauma, (*g*) fright, and (*h*) toxic agents, as tobacco, alcohol, and malaria. Still other cases are excited by auto-intoxications from imperfect peptonization and arrested metabolism

Season and climate perhaps exert some influence in causation, summer and winter producing the most cases. In the summer there is the liability to shock from sudden cooling, while in the winter there is exposure to extreme cold

There is clinical evidence in a few cases which indicates that psychic stimulus may cause a transient localized edema. One or two instances have been cited as following hypnotism. In these cases there may have been a pre-existing neurotic condition which predisposed to the attacks, and yet this is not necessary to explain them

Kaposi, in his work on Skin Diseases, in the chapter devoted to erythema and urticaria, shows that a stimulus applied to the periphery may be conveyed to the vaso-motor centres and returned to the periphery and manifest itself as an erythema, urticaria, or edema, or some toxic agent in the blood may irritate these centres and produce angio-neurotic disturbance at some vulnerable point on the periphery, or the stimulus may occur in the cortical centres in the brain and be projected to the vaso-motor centres, and from there to the periphery. Then again, the stimulus may be applied to the periphery at one point and be manifested in a remote part of the body as an angio-neurotic edema or erythema, through the medium of the reflex centres and system of nerves

There is a growing conviction among neurologists that the reflex centres have been accused of much that properly belongs to the central nervous system. We are coming more and more to recognize the intimate relationship existing between mind and matter, and perhaps many phenomena which we attribute to what may be styled the animal mechanism have their origin in cerebration, though the act be an unconscious one. That the original source of the stimulus may be through the special senses, as the eye or ear—a horrible sight or a terrifying sound—I firmly believe.

Now, having these sources of primary stimuli—reflex ganglia, periphery, brain centres, and special senses—in mind, we are ready

to study the conditions which are necessary to make them operative

If a person has an equilibrium of functional processes, with none of the neuroses, the stimulus will produce no marked angeio-neurotic disturbance, except those which are physiological, as hyperemia, transient ischemia, etc., but, on the other hand, if he has impairment of the endothelial lining of the capillary vessels, a slight stimulus applied at the periphery, reflex centres, or cortical substance of the brain may produce profound changes in parts of the body which at the moment are etiologically weak

In the case reported by Malgaigne in 1840 as due to pricking a nerve when bleeding a patient, there may have been no neurosis, but the momentary shock and psychical stimulus are sufficient to explain the edema. Then, too, the nerve was injured, and trophic processes may have been impaired, thus giving rise to the transient edema. The same may be said of the cases reported by S. Weir Mitchell as resulting from injury to nerves in bullet wounds. In 1876 Milton reported a case of giant urticaria, which was probably an edema of the uvula associated with urticaria in other parts of the body. Dr. Bannister, a Fellow of this Academy, was among the first, if not the first, American to call attention to this affection, in an article entitled "Erythema or Urticaria?" in the *Chicago Medical Review*, 1880. As his case is typical of a portion of those reported, I will here quote a description of it

Mr P—, aged 37, carpenter. Discomfort from swollen limbs, with itching or burning and headache. Has been subject to attacks of migraine for years, from one of which he is just recovering. For years has been subject to pruritus, especially in winter. On his head were one or two urticarial wheals, angry red at circumference and paler at centre, the larger one the size of a silver quarter of a dollar. Drawing finger over surface of skin left a white line for a few seconds. Urine normal as to specific gravity, albumin, sugar, and appearance.

Improved for a day or two, then began to have distress in throat. One morning I found him unable to speak above a whisper. Respiration not interfered with to any extent. Causing him to open wide his mouth and elevate the palate, the uvula popped forward, appearing almost as large as a man's thumb, tense and glassy. Immediately I clipped the uvula in several places with a pair of scissors, which gave almost complete relief in fifteen minutes. There was also considerable edema about the pharynx. His recovery from this time on was rapid and complete. Since then he has suffered at times from pruritus and swollen feet. Acute gastric symptoms were absent. Patient had scurvy during the war.

In a recent conversation with Dr. Bannister, he assured me that the affection of the uvula and pharynx was a true edema, there

being no redness, but a pale semi transparent tumefaction, which gave forth clear fluid when clipped with the scissors. In this instance the edema was associated with urticaria and probably with an arthritic diathesis. That the patient was a neurotic is suggested by the subsequent pruritus and swelling of the feet. His general health had been much impaired by the privations and exposures attending the life of a soldier in war times. He was predisposed to the edema by the lowered vitality of his tissues, the endothelial cells of the blood vessels no doubt sharing in the retrograde movement, while the quality of the blood was so changed as to act as the exciting agent.

In a subsequent paper by the same writer, in which he reports the same case, he says, "Both it and urticaria are only degrees of the same angio-neurotic manifestation of what is generally the toxin of arthritis, purpura, or some intestinal or other irritant acting within the system." I am not satisfied to abide by the conclusions in Dr. Bannister's paper, as it only takes into account the exciting agent, while the predisposing cause—the lowered tone of vital processes—is only implied. The trend of scientific medical research is to discover the predisposing factors, without which in most instances, the exciting causes would be ineffective.

While there is undoubtedly a close relationship between urticaria and simple acute edema—as, indeed, there is between all neurotic phenomena—yet there is a somewhat different pathology attending the various manifestations. Some of the cases now referred to as angio-neurotic edema are probably cases of urticaria, and tend to confuse the judgment of the student.

In Matas' case there was a malarial toxin acting as an exciting cause and the tone of the tissues was impaired by the ravages of long continued disease until the soil was ripe for angio-neurotic manifestations. The edema recurred daily from 11 to 12 A. M., on the upper lip, causing great disfigurement during the brief time of its stay. It was finally cured by the administration of quinine as for malaria. It may be questioned why the edema continued time after time to attack the upper lip in preference to other parts of the body. Habit is strong even in neuroses. Psychologists tell us that the subjective sensation of pain may remain long after the lesion causing it has disappeared and explain it as "pain habit." Then why may there not be an "edema habit" which causes a part once affected to be selected for subsequent attacks?

Starr reports a case of a woman who when she placed her arms in cold water had edema of the hands. She had the same symp

toms on her face and legs when out of doors in winter, and upon her buttocks when at stool in a cold closet To tell this woman to keep her arms out of cold water, to dress warmer in winter, and to go to stool only in a warm closet, would rid her of the exciting cause and perhaps relieve her of further trouble so long as she obeyed, but it would in no wise relieve her of the constitutional defect which probably laid her liable upon slight exposure

Osler's classic study of five generations shows one affected with angeio-neurotic edema in the first generation, one in the second, five in the third, ten in the fourth, and three in the fifth Edema was not inherited by these people, but an impaired cell-structure and activity which manifested itself as an edema was inherited Along with this tendency, environment and suggestion acted as exciting causes I need not multiply cases illustrative of this affection, as others have already done so, but I will close with a report of a case coming under my own observation

August 1, 1895, Miss W——, age 26 years, teacher of Latin and Greek, was brought to my office in Evanston by Dr W A Phillips, who thought that perhaps tracheotomy might need to be performed, as there was a dropsical condition of the pharynx with extreme dyspnea Upon inspection I found the uvula and pharynx the seat of a pronounced edema, extending almost as low as the larynx, nasal mucous membrane quite edematous, translucent, pearly-gray in color, exuding a profuse heavy mucus, face somewhat dropsical Breathing was interfered with to some extent, but upon my assurance that the condition would probably soon pass away the patient became more calm and began to breathe easier

She had been suffering from a slight attack of hay fever, but was otherwise apparently quite well Had started to go with some friends to Chicago, and when at the depot at K—— felt a slight headache, on board the train she began to have a feeling of swelling in throat and nose, and in five minutes was suffering great dyspnea At Evanston, after a four-mile ride, she abandoned the party and drove to Dr Phillips's office, where he found her as previously described

The family history shows that her paternal grandmother died of tuberculosis at the age of 22 years, leaving two children, both boys The father of the patient is 57 years old and in fair health, twenty years ago he had several hemorrhages from the throat or lungs, has had two or three mild rheumatic attacks The mother is robust but worries over matters of minor importance The father and all the children complain of what they call poor circulation,

meaning cold extremities Miss W——, while at college in Minnesota, would often, upon arising in the morning, feel excited as she expressed it, she felt as excited "as though she were going on a trip to Europe "

In this case I could find no exciting cause unless it were some condition attending the attack of hay fever The predisposing cause is the marked neurotic diathesis The slight exposure attending the trip produced a marked erythematous eruption on the face, which rapidly disappeared in the warm room

Collins says that angeio-neurotic edema is due to a vaso-motor disturbance, and not to a trophic neurosis meaning thereby that the increased transudation of lymph from the blood vessels is due to a stretching of the endothelial walls by which they are made more porous, allowing the watery elements of the blood to pass through more freely He may be charged with carelessness, at least, in giving expression to so obvious a misstatement of facts

According to Hamilton's Pathology the following factors influence the transudation of fluids from the small blood vessels

1 Increased arterial pressure does not cause edema so long as the venous channels are freely open

2 Arterial dilatation, produced by artificial section of the vaso-motor constrictor nerve-trunks or by stimulation of the vasodilators, may be attended by dropsy, but it must be noted that in cases occurring from natural causes there would be paralysis, which would interfere with the flow of lymph, the nourishment of the parts would be impaired, and the tendency to dropsy perhaps increased

3 Obstruction to venous outlets acts as a powerful factor in bringing about local dropsy, but the obstruction of a single large trunk will not produce dropsy The entire circle of outlets which communicate with the part must be obstructed before edema will occur

4 If there is obstruction in lymph-channels and glands there is no dropsy unless the obstruction is in the thoracic duct If a local set of lymphatics and glands is obstructed, no edema occurs, the veins being sufficient to carry off the exuded lymph

5 Undue laxity of tissue favors dropsy Leanderer holds that the commonest cause of dropsy is loss of elasticity of the tissues, along with alteration in blood vessel walls

6 Alteration in the walls of the capillary vessels is a most important factor in causing edema, especially angeio neurotic edema The capillary walls are very thin, and a slight alteration

in the endothelial cells would make the transudation of liquid easier than in health. Heidenham experimented on an animal poisoned by atropine, and found that by stimulating the chorda tympani the submaxillary glands became much congested, but there was no increase in the secretion of the gland nor in the quantity of lymph drained away through the lymphatics, the gland-cells ceased to secrete, and although there was great dilatation of the vessels in the glands there was no edema. The blood-vessel walls did not allow the lymph to exude through them. Brunton says the atropine had some direct and immediate effect upon the endothelial cells which abolished their power to exude lymph.

Gaskell has shown that dilute acid in the blood causes relaxation of the muscular fibres in both heart and vessels, while dilute alkalis have the opposite effect. Brunton and Cash have corroborated Gaskell, and have also noted that edema may follow the addition of acid to the blood, they explain it as due to an altered permeability of the endothelial walls of the blood-vessels.

In extreme anemia it is not uncommon to see dropsical accumulations, and here certainly the vessel-walls are impoverished and lowered in vital tone, so that transudation takes place in excessive quantity.

We learn from a study of these facts that neither simple dilatation nor increased arterial pressure will produce an edema, but that the blood-vessel wall—the endothelial lining—must be impaired before the transudation takes place. Heidenham's experiments show clearly that the cells may be so altered by atropine that they will not allow transudation when all the other conditions favor it. And if these cells can be so changed as to diminish the exudate, they may also be changed so as to increase it. The endothelial cells lining the blood-vessel walls are not so many plates or bricks between which the fluid portion of the blood oozes out to furnish nourishment to the parts, but they each have an autonomy, a distinct life and functional activity independent of other cells. This has been observed when they project finger-like processes to embrace and swallow bacilli or other micro-organisms. Dr Evans (also a Fellow of this Academy) only a few days ago showed me some drawings of endothelial cells which he saw under the microscope in the act of swallowing or enfolding a bacillus. If these cells have this power, they certainly have a rather high degree of organization and functional activity, and therefore they may, and do, become impaired—not simply in the natural process of death, for we know they are constantly dying and being replaced by new cells, but they

may as an aggregation of cells be lowered in tone and thereby rendered incapable of controlling the processes over which they preside

Then, when Collins says angeio neurotic edema is due to a vaso-motor disturbance—a simple dilatation of the capillaries—with no nutritional impairment of the vessel walls, he is obviously mistaken. In these so called angeio-neurotic edemas the impairment may be of short duration, but the edema is an expression of that impairment, and not an expression of a simple vaso motor disturbance

No one factor can be said to act as an effective causative agent, but in combination a few or more play each its part. An exciting cause alone cannot produce edema. there must pre exist or coexist an impairment of the nervous fluids or cells, with an altered activity of the endothelial cells and matrix of the vessel lining. Added to this is perhaps an obstructed lymphatic flow, which of itself would not produce an edema, as the veins would take up the retarded lymph but would aid in maintaining an existing one

It has often been said that one should not tear down unless he can replace with something better. I am quite sure it is a mistake to write, speak, or think of the so called angeio-neurotic edema as a disease. for it is not a disease, it is but an expression, a symptom of some stimulus acting upon impaired cell structures

OPERATIONS FOR RETROVERSIONS *

BY HENRY T. BYFORD, M.D.,

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When it was discovered that pessaries were of palliative value only, even when used after the successful performance of plastic operations upon the perineum, vagina, and cervix, a still hunt after radical operations was commenced by many prominent gynecologists. The result was that every conceivable manner of cutting and suturing, and every conceivable combination of cuts and sutures, were employed upon the ever willing and grateful patients. Fortunately, the good sense and mature judgment of the profession have already relegated most of them to the forgotten history of medicine. I will therefore only speak of three surviving ones.

Perhaps the most prominent of these was the shortening of the round ligaments by Alexander, of Liverpool, England, who planned, executed and perfected his method, and obtained many followers in England, America, and France. The usual number of objectors, however, appeared upon the scene, and claimed that the ligaments were normally not strong enough to hold the uterus up, that sometimes they were atrophic, and at other times could not be found. Theoretical objections of this kind prevented the operation for a long time from obtaining the recognition it deserved. The fact that this method was not applicable to retroversion with adhesions, and that many operations done in such cases proved failures, caused many thoughtless ones to denounce it.

In the meantime it had been observed by Koeberle and others that when the stump, which was left after the removal of the ovary, was stitched or clamped in the abdominal wound, the uterus retained its new attachment and did not fall back into retroversion. Taking the hint, many surgeons began to suture such stumps or the fundus uteri to the abdominal wall after removing diseased appendages, and finally they opened the abdomen for the sole purpose of thus suturing the fundus. In this way ventro-fixation became an established method. It soon became a noticeable fact that many gynecological surgeons performed ventro-fixation (hysteropexy, hysterorrhaphy) for all cases of retroversion requiring an operation, while others performed Alexander's operation whenever practicable, reserving ventro-fixation for cases in which the abdomen had to be opened for the removal of diseased appendages.

As ventro fixation seemed a somewhat serious operation for so harmless a condition as retroversion without adhesions, the Germans, who were apparently prejudiced by the numerous theoretical objections to Alexander's operation invented several new methods for the purpose of getting a purchase upon the fundus by way of the vagina. The most successful and celebrated and only surviving method of this kind is that of Mackenrodt and Duhrssen, called vaginal fixation. This consists essentially in making a long longitudinal median incision in the anterior vaginal wall separating the bladder from the uterus and anterior vaginal wall and stitching the anterior uterine wall to the vaginal incision. Mackenrodt does not break into the peritoneal cavity, and has had a number of failures. Duhrssen opens into the vesico-uterine peritoneal cul de sac and brings the fundus uteri down in front of the displaced bladder, so that the uterus contracts connective tissue attachments of its anterior surface and fundus to the anterior vaginal wall and bladder. The chief objection to this latter procedure consists in the fact that the adhesions do not usually stretch during pregnancy, and dangerous complications arise during labor, the cervix remains too high in the pelvis, and the os does not dilate properly, *accouchement forcé*. Cesarean section and hysterectomy have in some cases been found necessary, to deliver the child.

Thus we have three operations each of which has attained success in many cases, and each of which has its advantages and disadvantages.

Gynecologists have not all recovered from a preconceived opinion that there ought to be but one radical operation for retroversion, and many intelligent physicians and surgeons are prejudiced by the impressions produced upon them by witnessing Alexander's operations upon retroflexions with adhesions, or abdominal section with ventro fixation upon cases that had no adhesions and perhaps no symptoms or by reading of the disastrous effects of vaginal fixation when followed by pregnancy. The time is, however, at hand in which we can with some certainty fit the operation to the case, and obtain the good and reject the evil in each method. The time is past, I hope for men to report their hundreds of any one of these operations to the exclusion of the others.

In the majority of cases including some with adhesions, no operation whatever is indicated.

In cases without adhesions in which we can replace the uterus manually or with the sound, Alexander's operation for shortening the round ligaments affords brilliant results in competent hands,

even when the ligaments are small or cannot be found by the novice. The shortened ligaments do merely what they did before they became relaxed and stretched, viz. they hold the fundus against the bladder, in which position it has no tendency to fall back, the abdominal pressure holds it forward.

I have an interesting case in my mind now which illustrates that all of the failures credited to Alexander's operation are not failures. The patient was a virgin with an enlarged ovary and a uterus whose walls were considerably thickened and made rigid from so-called menstrual subinvolution. For two or three months after the operation it remained in a normal position. After that I usually found it retroverted, although occasionally in normal position. She soon after married a physician, became pregnant, and, about two years after the operation, bore a child. The child is now eight months old, the uterus is normal in size, *i. e.* quite a little smaller and softer than before the operation, and remains in a normal slightly anteverted position, without any tendency to tip backward. The lesson of this case is that (1) if the uterus is enlarged, the ligaments, even if shortened, may not be strong enough to prevent retroversion, (2) the benefit of the shortening is not entirely lost even when the uterus retroverts, and a cure of the uterine pathological conditions (which may be aided by the temporary use of a pessary) will enable the ligaments finally to resume normal action, and (3) the influence of normal pregnancy and lactation may cure a menstrual subinvolution, or the enlargement and hardening of the uterus so frequently observed in virgins who have had an endometritis or ovaritis.

In cases of retroversion with adhesions and decided symptoms it is necessary to open the abdomen to separate the adherent surfaces, and it is then simpler and perhaps safer to stitch the fundus forward than to do anything else that would be adequate.

In cases of retroversion without adhesion and in connection with sterility, or in cases after the change of life and in which other operations upon the vagina are undertaken, vaginal fixation is often the quickest and easiest procedure, and will undoubtedly find a small place in gynecological surgery.

With regard to pessaries it might be said that they are useful in cases of retroversion with adhesions in which the uterine pathological conditions may be expected to subside within a reasonable time, and that it will then make but little difference whether the uterus is retroverted or not. This class of cases is perhaps as large as any of the others.

A CASE OF SUDDEN DEATH FROM AIR EMBOLISM FOLLOWING AN ATTEMPT AT ABORTION

BY LOUIS J. MITCHELL, M.D.

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Mrs F D W——, aged 27, had borne two children, and had one miscarriage at 3½ months the latter about one year previous to the time of which I write. On the morning of October 1 she was found lying unconscious on the bed, with her feet on the floor. Some water was given her, but she was unable to drink. She then commenced to froth at the mouth, had a "spasm," and died in a few minutes. One week previously she had informed her mother that she was pregnant. A much battered linen catheter, No 10, with the stylet *in situ*, was found in the folds of her dress, but no syringe, water, or anything of that sort was discovered.

Necropsy, six hours after death, showed the body to be that of a well nourished young woman, there were no marks of violence, *rigor mortis* was but slightly developed, and the pupils were semi dilated. On opening the body adhesions were found at the apices of both lungs, which contained small tuberculous foci, the remaining portions of the lungs were congested. The stomach was about half full of partly digested food. The liver, kidneys, spleen and brain were normal macroscopically. The veins of the mesentery and omentum contained blood separated by clear spaces, the columns of blood varied from one to three centimeters in length. Pressure on the vessels caused these clear spaces to move to and fro, pushing the blood before them. The same appearance was noted in the gastric and coronary veins but not in the vena cava nor pulmonary arteries. The pericardial sac was empty, smooth, and shining. On grasping the heart, it felt resilient as though "squeezing a rubber ball but partly filled with air." On incising the right ventricle, the cavity was found filled with an admixture of blood and air, which frothed out of the opening. The blood seemed thoroughly churned up with air, and the clots were neither numerous nor large. The auricle also contained a quantity of this frothy blood, the left side was empty, the heart itself was normal. The uterus was 15 centimeters long and contained a male embryo about ten weeks old (11 centimeters). There was no hemorrhage in the vagina, but the uterine cavity contained a small quantity of blood. The membranes were perforated and were separated on the right and anteriorly over an area of 4.5 by 5 centimeters. The right ovary contained a recent corpus luteum.

This adds another to the rather scanty list of cases of air embolism occurring during pregnancy, labor, and the puerperium Hektoen,* in reporting an interesting case of a similar nature, has given a *résumé* of the literature so recently that it seems only necessary to direct those wishing more information to his article. A cursory search through the *Index Medicus* fails to show any cases since

It seems unlikely that the patient introduced the catheter unaided, and, as before remarked, no traces of apparatus for injection were found. However, no evidence was to be had as to any accomplice.

No bacteriologic examination was made, hence the gas-producing bacilli are not excluded, however, the peculiar circumstances attending the death, and the short interval between death and the necropsy, seem to preclude their participation.

* *North American Practitioner* iii p 90

MANAGEMENT OF CASES WHICH HAVE RECOVERED FROM APPENDICEAL ABSCESS IN WHICH THE APPENDIX WAS NOT REMOVED

BY JOHN D S DAVIS M D BIRMINGHAM ALA

The practice of dealing with appendiceal abscess by simply evacuating the pus and draining the cavity thoroughly, without any very extensive search or the breaking up of adhesions in order to find the appendix, has been adopted by a large number of leading operators for some time past. More recently some of the surgeons have advocated, in all cases that the operation should be made complete, and that all adhesions should be freed and the appendix removed. One leading abdominal surgeon, who has perhaps done more work in pelvic surgery than any other man in this country, has advocated this plan of treatment in most vigorous terms. Evidently he has been led to take this position from his experience with tubal and ovarian abscesses. It must be remembered, however, that in these cases the cause of infection is very different from what it is in an appendiceal abscess. In a large proportion of cases of pus in the tubes and ovaries, gonorrhea has been an important factor in its production. Such pus is not septic, and is not calculated to give rise to so dangerous a general inflammation as the infection from an appendicitis or an appendiceal abscess. It is a notable fact that a ruptured tube or ovary will usually be followed by a circumscribed inflammation and only exceptionally does a fatal general peritonitis result from such an accident. Of course, when the pus is due entirely to puerperal infection and has existed only a short time the condition is different and a general inflammation will result but if the pus tube has existed for a long time it becomes less and less infectious—the pus has been shown by microscopical examination in many cases of this sort to be almost sterile. It is easily understood how such a fluid might escape into the general cavity without causing great harm, if washed out. On the other hand, an appendiceal abscess is due to the most infectious germs, and a small quantity of pus from such an abscess will usually cause a serious general inflammation. The most fatal forms of peritonitis are due to a ruptured appendiceal abscess, in fact but few cases are saved where such an abscess ruptures into the general cavity. So it will not do to apply the argument from tubal and ovarian to appendiceal abscesses.

Operation on an appendiceal abscess is usually one of the simplest of procedures, and is attended with almost no danger. Where

the inflammation is circumscribed and the drainage is thorough, nearly all cases recover. Patients suffer no shock from such an operation, and the temperature becomes normal or nearly normal at once, and the condition is one of convalescence almost immediately after the operation. The records of operations upon appendiceal abscess show that the great majority of cases are cured after evacuation and complete drainage. Recurrence of the disease in such cases is very rare. The appendix in a large proportion of cases ruptures before the abscess forms, and is completely drained through the abscess and permanently cured. In others the appendix is destroyed by the inflammation, and there is nothing left of it when the abscess is operated on. To make an extensive search for the appendix is liable to break up adhesions and allow escape of septic fluid into the general cavity. Thus a very simple condition may be converted into one of the most serious that could happen to the peritoneal cavity. Surely such a risk should not be hazarded when it is so easily avoided. Even if life is saved after such an operation, the patient will have all of the annoying symptoms, such as thirst, pain, restlessness, etc., that are found in cases of abdominal section, and these are not encountered after operating on an abscess in the other and simpler way. It is well enough to search for the appendix by gentle manipulation, and if it is found without any great difficulty it should be removed, it is not even necessary to use a ligature if there is any difficulty in applying it, as the opening will be into the abscess cavity and do no harm, should there be any bleeding from its removal, the packing of gauze would control it.

As stated, after such operations there will be a small percentage of cases of recurrent appendicitis. Should a patient be lost from such an attack, the surgeon is liable to be criticised and to be blamed for not having done a complete operation at the time the abscess was opened. Certainly he will be criticised if it is the prevailing opinion of leading operators that a radical operation should be done in every case, and the purpose of this paper is to emphasize the great error of such teaching and to advocate the simpler plan.

There cannot be much need of breaking up the adhesions, for they give way in a short time after the abscess is relieved—they do not remain permanent, as has been claimed by a number of surgeons. I have seen such cases where you could not tell there had ever been an abscess. In breaking up these adhesions, in addition to the danger already mentioned, you prepare a favorable condition for fresh adhesions, with the possibility of the bowel being fastened in a position that will produce pain and often obstruction.

There are cases of abscess in which it is impossible to evacuate the pus extra peritoneally, but in such cases we can so completely wall off the general cavity, while the pus is being evacuated, that there will be no possible escape of the fluid into it. After the abscess is thoroughly cleansed and its cavity packed with gauze, the chances for recovery are good. Still the gravity of such an operation is many fold greater than that of the operation on an abscess which has become attached to the abdominal wall. It is conceded that there is often a small collection of pus around the appendix, and in cases of early operation for such a condition it is proper to remove the appendix and pack gauze around the field of operation. These are very different cases from those already referred to.

We are now prepared to speak more particularly along the line indicated by the title of this paper. Of the large number of operations which my brother (Dr W E B Davis) and I have done for appendiceal abscesses, in which we have pursued the plan already outlined, we have had only five cases of recurrence. We were not able to have these patients follow the plan which we advise in such cases. In one case abscess recurred three times in another twice.

Should there be a return of the disease or should there continue pain for some time after the patient is able to be up, the appendix ought to be removed. Indeed a patient should be thoroughly impressed with the importance of not going on without another operation should there be discomfort in the region of the appendix for such discomfort shows conclusively that the appendix has not been cured, and that there is liable to be another attack which may cause the death of the patient. It should be thoroughly impressed—should there be another attack of appendicitis—that an operation should be done within the first twelve hours after the attack. It should be explained fully that if such an operation is not done within the first twelve hours a general inflammation may be established which cannot be relieved by surgery. In order to be saved this risk, an operation should be promptly done even though the attack is very slight.

By the plan which I advocate there would be risk of losing some cases from a recurrent attack, but the danger is not to be compared to the fatality which would occur by the general adoption of the radical operation now urged by some of our leading surgeons.

My brother, in a discussion before the American Association of Obstetricians and Gynecologists in Toronto, last year spoke as follows, and completely expressed my views along this line.

In recommending the breaking up of adhesions and searching

for the appendix in cases of appendiceal abscess, I think Dr Morris and Dr Price have advocated a dangerous practice. They have recommended a line of procedure which, if carried into effect, will cause many deaths. While this practice may be followed with some success in careful and skillful hands, in the majority of cases it would be a dangerous procedure. I can conceive of nothing more dangerous than allowing the smallest quantity of this offensive septic pus to escape into the abdomen. In the last year, by gentle manipulations and treatment of these abscesses, I have had two secondary abscesses produced by the escape of pus into the abdomen, and the patients came very near dying. If you do not find the appendix by very gentle manipulation, you had better let it alone, and simply do a life-saving operation. When the abscess heals, the intestine is largely freed from adhesions. There is no use in tying off the appendix, in a large proportion of cases, as it is destroyed by the inflammatory process. An operation should be resorted to, if necessary, after recovery from the abscess. In cases of appendicitis on which we can operate early, before the formation of an abscess, we should do an ideal operation: remove the appendix, not tie off, and then bring up the bowel and sew the opening, as in a gunshot wound of the intestine.

“Dr Price has said that quite frequently the appendix is not found at the post-mortem examination. Of course we cannot find it in some cases, for the reason that it has sloughed away. The inflammation is so destructive that it destroys everything in its reach, and it will not do to allow such pus to escape into the general peritoneal cavity. In these cases we can do a life-saving operation, and then, later on, if necessary, remove the appendix. We have had to do radical operations on two physicians in my city some weeks after the evacuation of the abscess, as the appendix in both cases still gave trouble. These cases are usually relieved by the opening in the appendix and the drainage of the abscess. Some are cured by the abscess opening into the bowel, and the appendix being drained or destroyed. In cases of appendicitis, where the symptoms are severe and last more than a week and then disappear, an abscess has generally opened through the intestine, and such cases should not be used as an argument against the operation. Some patients decline to subject themselves to the danger of a secondary operation for the removal of the appendix, but this should be insisted on if there be any evidence of recurrent inflammation, and the operation should be done within twelve hours of the attack.”

ABDOMINAL PREGNANCY *

BY CORNELIUS KOLLOCK, M D CHICAGO ILL.

The pathology of extra uterine fetation has been described by many in a manner too elaborate to present a clear conception of the trouble or to suggest a potent and reasonable remedy there for. A discussion of this extraordinary freak of nature should include some consideration of its causes. Observation and experience have revealed certain facts that are of value in this respect. Inaptitude for conception, long-continued sterility, malformation of the uterus, and catarrh of the Fallopian tubes are acknowledged to be potent causes. When the epithelium is destroyed in any portion of the tube, the large ovum will not pass, but while catarrh of the Fallopian tube is sufficiently destructive to prevent the passage of the large ovum, the small spermatozoa, which seem to have independent motion may pass and cause fecundation. External adhesion, or simple disturbance of the physiological functions of the tube, may be regarded as a powerful influence in causing misplaced conception.

The classification of varieties of external fetation by early writers on the subject is entirely too elaborate. Ten varieties have been given. The number has now been reduced. Perry limits them to three: tubal, ovarian, and abdominal. The theory of Lawson Tait, now held and advocated by T. Gaillard Thomas and other distinguished embryologists, rather simplifies matters. It seems reasonable to assume that all extra uterine efforts are at first tubal; that other varieties may be seen after the tubal sac has been ruptured and the ovum thrown out. A variety known as interstitial is simply tubal for it takes place where the tube has entered the uterus. When the tube is ruptured at a point under its posterior surface where it is pressed by the broad ligament the ovum may develop in the broad ligament and become extra peritoneal. If the tube is ruptured on a part of its free surface, the ovum enters the abdominal cavity, and there the growth is developed sometimes to an enormous size, as was well illustrated in the case I am about to report. Ovarian pregnancy cannot be set aside with a word only. We may readily admit that the ovum does not always escape from the rupture of a follicle, and that spermatozoa sometimes do enter a follicle and fecundate it. Leaving aside many of the cases mentioned by older writers, we must recognize and consider those so carefully

* Read before the Southern Surgical and Gynecological Association November 1895.

and cautiously reported by Porter, Kammerer, Spiegelberg, Lusk, Wyeth, and other competent modern authorities. We must admit the evidence furnished of the possibility of such a variety of extra-uterine fetation, but many of the cases of supposed ovarian pregnancy are instances in which the ovum has grown among the fimbriæ and become attached to the ovary.

Case—On the 18th of October, 1894, I saw for the first time a dark mulatto, 34 years of age, the mother of three children, her general health had been good until within the last fifteen months. The abdomen was enormously distended and measured at the umbilicus 63 inches. Fluctuation was evident and wave-tap very distinct. Doubt was expressed by some of the physicians present as to the diagnosis of the growth, while some favored the idea of its being uterine, with others there was a question as to the position of the tumor. The patient, however, affirmed most positively that she was pregnant and had gone four months beyond the actual period of gestation. A thorough examination confirmed the suspicions of all that the case was one of unusual complication. A laparotomy was decided on, and an incision four inches in length was made below the umbilicus. The walls were so thin that the instrument penetrated the cavity before it was certain that the abdominal muscles were divided, when there was a sudden and copious discharge of offensive matter. When the fluid had passed out, an immense fibroid was removed from the anterior portion of the sac. The cavity also contained a fetus weighing ten pounds. This was macerated, having been dead so long, and floating in a large quantity of offensive purulent matter. So firmly was the fetus packed in the cavity that in removing it a part of the scalp was torn off, and with it a large bunch of black hair. After removing the fetus, the placenta was with difficulty detached, it was as large as a hat and resembled it in shape, it lay well in the right hypochondrium, in contact with the sternum, which it formed strong adhesions, it had large vessels could be seen after its removal, which it was taken. The heart was only barely palpable, with six ribs exposed. The heart was in the right hip position. The patient was allowed to remain in the iodiform

gauze was introduced daily to facilitate drainage, and this was covered with a snugly fitting bandage. More than a month passed, she seemed to be doing well and could walk about the room when imprudence in eating brought on an attack of acute indigestion, followed by complete stricture of the bowels and stercoraceous vomiting. After some days death ensued.

The large mass constituting the placenta had undergone fibroid degeneration, with only a small part of the placental tissue remaining. Further, fatal degeneration had begun to take place in the fibroid tissue. An interesting question comes up here. Considering the weak condition of the patient, would it have been better had this large placental mass been left for subsequent absorption or removal? Taking it away subjected the woman to almost fatal hemorrhage.

At the post mortem examination the uterus and ovaries were found to be of normal size and to present no pathological lesions. The pregnancy was tubal, occurring in the left side near the fimbriated extremity, and involving a portion of the broad ligament. When the two peritoneal folds of the ligament were brought together, the sac cavity between them would not have enclosed a tumor larger than an ordinary orange. The fetal sac was developed between the abdominal wall and the omentum, the latter forming the floor. The fetus lay diagonally across the abdomen, the feet in the left lower pelvic cavity, and the head under the right ribs. The omentum protected the abdominal viscera from being matted together by the adhesions, although the floor of the sac contained a large amount of fetal hair firmly embedded in its tissue. One small band of adhesion stretching across a loop of small intestine, caused the fatal obstruction of the bowel. The patient after the suffering she had undergone from the retention of a large fetus four months beyond the period of gestation the severe operation to which she submitted and the almost fatal hemorrhage that followed, was well on the way to recovery. lived comfortably for five or six weeks, and would probably be living now had it not been for the unfortunate intervention of intestinal obstruction.

BOOK REVIEWS.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS, with especial reference to the Clinical Application of Drugs By John V Shoemaker, M D , LL D Third edition, thoroughly revised Philadelphia The F A Davis Company 1895

In preparing a third edition of this work the author has taken the opportunity of combining into one the two volumes which had been separately printed While this is an added convenience for reference, it at the same time makes a volume of 1108 pages, which is rather cumbersome

The statement in the preface that "the natural forces and physiological agencies discussed in this volume are of immense importance in therapeutics, and are often of more avail in the treatment of disease than medicinal substances or drugs," is fully borne out by the relative space which is accorded these subjects, about one-fourth of the volume being assigned to a consideration of the extra-pharmaceutical remedies

The first 78 pages deal with pharmacology, materia medica, pharmacy, prescription-writing, poisons, antidotes, general therapeutics, and classification of remedies

The next 766 pages deal with drugs, which are arranged in alphabetical order

Among the more important additions in this edition we note the antiseptic properties of acetanilid, and its use as a surgical dressing Antinervin, a compound of acetanilid, salicylic acid, and bromine, as used by Sior of Darmstadt, is extolled

The analgesic properties of antipyrin are noted, but a lengthy account is given of the untoward effects of this drug upon the skin and mucous membranes, as well as a number of fatal cases of poisoning Tolpyrin, differing from antipyrin by the substitution of a molecule of the methyl group for one of the hydrogen atoms in the phenyl group, is described as having nearly the same action as antipyrin, but as being much less toxic and not acting as a cardiac depressant Tussol, a name given to a combination of amygdalic acid and antipyrin, is recommended in whooping-cough, and is said not to occasion ill-effects Ferripyrin, a combination of ferric chloride and antipyrin, has no corrosive action and is astringent

Creosote and its compounds receive the extended mention which their therapeutic range demands, in pulmonary tuberculosis creosote is recommended as being the most valuable drug which we possess Guaiacol as a substitute for creosote is described, and its use as an antipyretic in the treatment of fevers, erysipelas, pneumonia, and articular rheumatism is given Among the compounds of guaiacol we have the carbonate, phosphite, benzoyl-guaiacol, guaiacol di-iodide, guaiacol salicylate, and the combinations of creosote carbonate, creosote calcium hydrochlorophosphate, and oleo-creosote Styracol, a combination of guaiacol and cinnamyl chloride, is recommended as an intestinal antiseptic and in gonorrhea and chronic cystitis

Hydrogen dioxide, with its extended use in surgery and medicine, receives the attention deserved Its congeners, glycozone and pyrozone, are described

BOTH PLATES

Among the newer forms the description of the... enlarged, we note... diamine, silver phosphate...

Electro-therapeutics... points out how the application of the... methods formerly prevailing... value of the different currents from the... currents from electro-... their great convenience as compared with... Apostoli's method are... extended account of the... nervous system.

An excellent account... extended description of... chapter on hydrotherapy...

This new edition... earlier ones. The book is... amount of information in a... The abundance of formulas... mastered the art of extensive...

THE PRINCIPLES AND PRACTICE... Instructors and Students... edition. New York, D. Appleton & Co.

Since the appearance of... from all sides... edition is a... Professor... other writers... post-mortem observations... houses of Europe... pathologic... tematic, course... matic... other writers. The... summary is one of...

There is a certain... tradition, that is... mathematics... bered up with a rehearsal of all... His treatment of all... than three pages. In his treatment... name a single drug. There... be believed...

Among the newer drugs the description of which has been rewritten and enlarged, we note salol dermatol naphthol and phenol compounds ethylen diamine, silver phosphate formaldehyde formalin dulcin and tanningen.

Electro-therapeutics receives extended consideration and the author points out how the application of this force has been hindered by the empirical methods formerly prevailing. The conclusions of Rockwell regarding the value of the different currents from the induction coil are given. The use of currents from electric light plants is mentioned but there is no description of their great convenience as compared with ordinary batteries. Cataphoresis and Apostoli's method are adequately considered the chapter closing with an extended account of the use of electricity in the treatment of affections of the nervous system.

An excellent account of massage and the rest cure is followed by an extended description of pneumo-therapy and pneumatic differentiation with a chapter on hyrotherapy and climatology.

This new edition serves to confirm the favorable judgment passed on the earlier ones. The book is not deeply philosophical but it contains a vast amount of information in a form readily available for the busy practitioner. The abundance of formulas will prove to be a great help to those who have not mastered the art of extempore prescription writing.

THE PRINCIPLES AND PRACTICE OF MEDICINE Designed for the use of Practitioners and Students of Medicine. By William Osler, M.D. Second edition. New York. D Appleton & Co. 1895.

Since the appearance of the first edition of Osler's Practice one has heard from all sides little save praise for the work. The early demand for a second edition is additional proof of the high estimate placed upon it by the profession. Professor Osler has laid under contribution not only the literature of other writers in many languages but as well his own wealth of clinical and post mortem observation gained in this country and in the hospitals and dead houses of Europe. He is at the same time an eminent clinician and an able pathologist. And the book has the charm and interest that come from a systematic concise yet complete presentation of a subject. The terse epigrammatic sentences often convey more than the same number of paragraphs of other writers. The positive character of the writing, its individuality or personality is one of its most striking features.

There is a certain fearlessness about Osler's writing a breaking away from tradition that is inspiring. This is seen nowhere more clearly than in his materialistic or skeptical views concerning therapy. His pages are not lumbered up with a rehearsal of all the drugs ever recommended in a given disease. His treatment of all the diseases of the liver and bile passages occupies less than three pages. In his treatment of scarlet fever he does not mention by name a single drug. There is no specific for scarlet fever. Careful nursing he believes is of greatest importance. His words concerning the therapy of typhoid—'The profession was long in learning that typhoid fever is not a disease to be treated by medicine'—will save many a life if the truth they contain is duly appreciated by practitioners. The cold bath treatment is warmly advocated not because of ease of application or because of immediate comfort to the patient but solely because with this method the best results have been obtained.

Dr Osler's skepticism as to medicine is well shown in his remarks concerning erysipelas "Nor, so far as I know, has any medicine, given internally, a definite control over the course of the disease Perhaps as good an application as any is cold water, which was highly recommended by Hippocrates" This is what most of us think, but it is what very few writers have had the courage to put into print

Yet, where treatment is of positive value he goes into details He takes as much space to describe the treatment of acute Bright's disease as he does for the treatment of all the diseases of the liver combined, and undoubtedly because he feels that treatment here is rational and not empirical, and is of vital importance to the welfare of the patient

This work has always seemed to us better fitted for practitioners than for the average undergraduate For the undergraduate to take it as his sole guide, would, we fear, have a tendency to make him underestimate the value of remedial agents He might also become a little confused by the frequent references to proper names, to the literature, to conflicting theories, to Professor Osler's own bed-side and dead-house experiences These are the very points that make the book, for the practitioner, the best in the English language It corrects his tendency to over-drugging, keeps him close to plain fact, and, by reference to the experiences and the writings of others, inspires him with the desire to make observations for himself, to pursue original investigations, and to search in monograph and magazine for the articles that go to make up the classical standard medical literature For the select senior student, for hospital internes, for young practitioners in general, it is, we believe, the most inspiring and instructive book of its class in existence

The second edition is larger by several pages than the first The methods of examination of stomach contents have been omitted, it being taken for granted that physicians have by this time become as familiar with this means of diagnosis as with urinalysis or auscultation and percussion

Several new articles are added Among these are Bubonic Plague, Foot and Mouth Disease, Hemorrhagic Diseases of the New-born, Eczema of the Tongue, Affections of the Mesentery, etc In the chapter on Diseases of the Nervous System, valuable introductory matter is found

The greatest change is seen in the Infectious Diseases The articles on Typhoid Fever, Septicemia and Pyemia, Cholera, Syphilis, etc, have been recast in order to bring them up to modern views

The article on Diphtheria is practically new While accepting the view that true diphtheria is always due to the Klebs-Loeffler bacillus, Osler maintains that from a clinical point of view some cases are diphtheria even though the bacteriologist fails to find the bacillus These pseudo-diphtherias, while running, in general, a more benign course, are yet to be viewed with the suspicion that there is, after all, something diphtheritic about them, and are to be so treated Better treat as diphtheria what is not such, than *vice versa* The pathology of the disease is clearly set forth The antitoxin treatment is believed to be rational and to furnish the best results

The article on Malaria is also much modified and conforms to the views so completely set forth in Thayer and Hewetson's monograph

There is considerable change in what is said of appendicitis Professor Osler, while not denying the surgical character of this affection in many instances, raises his voice against the practice of invariably using the knife

when there is right iliac pain and tenderness with fever. If we mistake not, he is a little more inclined than formerly to allow nature to take her course in many of these cases. No one has yet given us an infallible rule of guidance for these cases. We must envy the man the possession of a conscience that does not twinge when he says 'Operate in every case.' And on the other hand he who says 'Never operate' is likewise to be envied. To each of these the course of treatment is perfectly plain. But to the majority of less gifted physicians trying to work for the best interests of each individual patient, no class of cases gives more worry and anxiety than these of appendiceal disease. A mistake in judgment may be fraught with most serious consequences.

It would be undignified and captious to cite points of minor importance on which author and reviewer differ. No work with the strong personal element of this one can be written without containing statements as to clinical fact or theory to which another might take exception.

It may be said in conclusion that the second edition is thoroughly abreast of the times, maintains the high standard of the first, and will continue to hold its place in the front rank of standard works on Practice.

JAMES B. HERRICK.

LA TUBERCULOSE ET SON BACILLE. Par I. Strauss. Rueff & Co. 160 Boul. St Germain Paris. 1895.

Written in a style which the French authors alone command and which makes reading a pleasure, this late contribution to our knowledge concerning tuberculosis comes to us as the most extensive of compilations upon the subject treated.

Evidences of great care in its preparation can be seen at once. It is printed on heavier paper than would have been used had English been its language. Its illustrations while few are nearly all chromo-lithographs, many of them full page, and all without exception works of art. There are nearly 900 pages, supplemented by carefully arranged indexes of subjects and authors the latter alone occupying six pages three columns to a page. The works of the authors referred to are found in foot notes on the pages specified.

The first 140 pages of the work are devoted to the history of medical opinion concerning tuberculosis antecedent to the discovery of its cause. Then follows an excellent chapter on the Morphology of the Bacillus and the Methods for its Recognition in which considerable space is devoted to pleomorphism. The question of spores is not definitely settled by the author but he inclines toward the belief that spores occur, and describes the methods of Babes and Czaplewski for staining them. He states that "new proofs are yet necessary to enable us to say whether the cocci like appearance is due to spores or to condensed protoplasm or chromatin in the bacillus." In a chapter devoted to Culture of the Bacillus many plates illustrate the growths not only of the bacillus of human tuberculosis, but also of that of fowls, on different media. Their differences are well brought out. In the chapter on the Biology of the Bacillus are reviewed the works of Sawitzky, Schottelius, Maffucci, Falk, Voelisch, Versin, Bonhoff, Forster, DeMan and many others relative to the resistance of the bacillus to heat, putrefaction, the gastric juice, antiseptics, light, etc.

Concerning the pasteurization of milk, the author makes positive statement that the process will not destroy the bacillus. The works of Toussaint and Galtier concerning the dangers of infection from beef are reviewed. By these authors it was shown that any ordinary cooking is not sufficient to render harmless, beef from cattle affected with lung tuberculosis. Schottelius affirms that the lungs of consumptives buried many years may yet contain virulent bacilli.

A very good review of the work done concerning the action of iodoform upon, not only the bacillus in culture, but also tubercular lesions, is given, to which is added new work done by Stchégoleff in the laboratories of the author. A consideration of the effects of dead bacilli, in which the work of Prudden and Hodenphyl receives notice, and also of the chemical nature of the toxin, are given.

In the chapter on the Histogenesis of the Tubercle the conflicting views of Metchnikoff and Weigert are impartially set forth, as well as the more recent works of Kostenitch and Wolkow, and Borrel.

The author's individual work stands foremost in the chapters devoted to Tuberculosis in Various Species of Animals. Four chapters, 150 pages, are devoted to descriptions of tuberculosis in bovines, in the dog, cat, rat, mouse, monkey, goat, rabbit, horse, swine, guinea-pig, and finally birds. The descriptions and plates, statistics and experiments devoted to bovine tuberculosis afford a revelation to any one unfamiliar with this important subject. The data can only be touched upon in a review. Most striking are the statistics from the different abattoirs. In that home of bovine tuberculosis, Leipzig, among 67,077 cattle killed between July, 1888, and December 31, 1891, 13,688 were found to be tubercular—24.4 per cent. A larger percentage of tuberculosis is reported among cows than in bulls or oxen, and tuberculosis was found to augment with the age of the cattle, calves being least affected. Tuberculosis of the lungs occurred in 80 per cent, generalized tuberculosis in 3 per cent, and tuberculosis of the udder in 0.29 per cent. A full consideration of the use of tuberculin as a revealer of tuberculosis in cattle is given.

The frequency of tuberculosis in hospitals, in the army, in convents, among professional people (physicians, nurses, Sisters of Charity), and the influence of age, altitude, sex, etc., receive full consideration in a chapter devoted to the Contagion of Tuberculosis.

It is pointed out that the statistics of the English place the greatest mortality between the ages of twenty-five and thirty-five, while for other countries it increases until sixty or seventy years. The statistics of Bertillon, Holti, Zwickh, Lehmann, Destreé, Würzburg, Farr, Ogle, and many others, are given.

The heredity of tuberculosis receives a chapter, and in this, as in all other questions discussed, relevant knowledge is completed by the latest observations.

Under Tuberculosis by Inhalation are presented the investigations of Hofmann and of Spillmann and Haushalter upon the dissemination of tuberculosis by flies, the works of Cadeac and Malet, Fr Muller, Sormani, and others upon expired air of the phthisical, and the well known investigations that terminated in the discovery, by the author, of the bacilli of tuberculosis in the nasal mucous membrane of healthy people.

In a chapter devoted to Infection by Way of the Alimentary Canal, there are discussed the restrictions necessary to prevent using the flesh of tubercular animals, tuberculosis from contaminated milk, butter, cream, etc., the examination of feces for the tubercle bacillus, and other interesting questions.

In the two chapters concerning the distribution and location of the tubercle bacillus in man, one finds the interesting investigations of Stehčgoleff on the influence of laparotomy upon cases of tubercular peritonitis published in 1894.

In ending a chapter devoted to the trials to obtain immunization the author states that "the serum therapy so brilliantly introduced by Behring and which has given such encouraging results in human diphtheria is as yet in a period of uncertainty in its application to tuberculosis

The book is concluded by two chapters devoted to tuberculin

It is seldom indeed that we have opportunity to procure a better example of one of those books which are ever necessary to those whose time or circumstances do not allow them to keep in touch with late developments along any one branch of medical science by means of the various medical periodicals

E R LE COUNT

PREGNANCY LABOR AND THE PUERPERAL STATE By Egbert H Grandin M D and George W Jarman M D Illustrated with forty-one original full page photographic plates from Nature Philadelphia The F A. Davis Co 1895

The authors have made in this volume a valuable addition to obstetrical literature. Supposing the student or practitioner to be already familiar with the essentials of 'anatomy, physiology, embryology and pathology' he has here a reliable clinical guide and a key to many trying problems and bedside emergencies.

Appreciating the fact that the dicta of science are subject to frequent change, with admirable impartiality Drs Crandin and Jarman seek to give the weight of current authority uninfluenced by personal or class preference.

Direct in its statement wherever facts warrant such directness whenever there appears ground for difference of opinion as to fact that which preponderates is given even though liable to change —Preface

The arrangement of chapters is excellent and the chapter-divisions and subdivisions judicious. We miss the stereotyped text book form with the methodical sequence of headline and paragraph but this is not a disadvantage. The straightforward conversational style of communicating facts is as helpful in the printed page as in the clinic.

Drs Grandin and Jarman are deeply interesting if not always clear in expression. This is not however, peculiar to these writers. There are unfortunately few medical text books which could be called classics of English composition. In this connection we would ask the distinguished authors if they mean exactly what they say on page 55. The gravid woman is peculiarly susceptible to smallpox possibly [the italics are ours] *because she has passed through the other eruptive fevers in childhood*.

It is better, also in dealing with subjects of moment to leave out all matters not directly pertaining thereto and to introduce none which are not worth a clear explanation. On pages 30-31 it is insisted that the care of the mammary glands during gestation is of the first importance and just when we are looking for a description of the proper kind of support, which aims at the prevention of local congestion without the exercise of pressure we are told that 'nowadays the so-called *shirt waists* are the proper articles to wear for giving support. Now the feminine public knows very well that the so-called 'shirt

Concerning the pasteurization of milk, the author makes positive statement that the process will not destroy the bacillus. The works of Toussaint and Galtier concerning the dangers of infection from beef are reviewed. By these authors it was shown that any ordinary cooking is not sufficient to render harmless, beef from cattle affected with lung tuberculosis. Schottelius affirms that the lungs of consumptives buried many years may yet contain virulent bacilli.

A very good review of the work done concerning the action of iodoform upon, not only the bacillus in culture, but also tubercular lesions, is given, to which is added new work done by Stchégoleff in the laboratories of the author. A consideration of the effects of dead bacilli, in which the work of Prudden and Hodenphyll receives notice, and also of the chemical nature of the toxin, are given.

In the chapter on the Histogenesis of the Tubercle the conflicting views of Metchnikoff and Weigert are impartially set forth, as well as the more recent works of Kostenitch and Wolkow, and Borrel.

The author's individual work stands foremost in the chapters devoted to Tuberculosis in Various Species of Animals. Four chapters, 150 pages, are devoted to descriptions of tuberculosis in bovines, in the dog, cat, rat, mouse, monkey, goat, rabbit, horse, swine, guinea-pig, and finally birds. The descriptions and plates, statistics and experiments devoted to bovine tuberculosis afford a revelation to any one unfamiliar with this important subject. The data can only be touched upon in a review. Most striking are the statistics from the different abattoirs. In that home of bovine tuberculosis, Leipzig, among 67,077 cattle killed between July, 1888, and December 31, 1891, 13,688 were found to be tubercular—24.4 per cent. A larger percentage of tuberculosis is reported among cows than in bulls or oxen, and tuberculosis was found to augment with the age of the cattle, calves being least affected. Tuberculosis of the lungs occurred in 80 per cent., generalized tuberculosis in 3 per cent., and tuberculosis of the udder in 0.29 per cent. A full consideration of the use of tuberculin as a revealer of tuberculosis in cattle is given.

The frequency of tuberculosis in hospitals, in the army, in convents, among professional people (physicians, nurses, Sisters of Charity), and the influence of age, altitude, sex, etc., receive full consideration in a chapter devoted to the Contagion of Tuberculosis.

It is pointed out that the statistics of the English place the greatest mortality between the ages of twenty-five and thirty-five, while for other countries it increases until sixty or seventy years. The statistics of Bertillon, Holtz, Zwickh, Lehmann, Destree, Wurzburg, Farr, Ogle, and many others, are given.

The heredity of tuberculosis receives a chapter, and in this, as in all other questions discussed, relevant knowledge is completed by the latest observations.

Under Tuberculosis by Inhalation are presented the investigations of Hofmann and of Spillmann and Haushalter upon the dissemination of tuberculosis by flies, the works of Cadeac and Malet, Fr Muller, Sorman, and others upon expired air of the phthisical, and the well known investigations that terminated in the discovery, by the author, of the bacilli of tuberculosis in the nasal mucous membrane of healthy people.

In a chapter devoted to Infection by Way of the Alimentary Canal, there are discussed the restrictions necessary to prevent using the flesh of tubercular animals, tuberculosis from contaminated milk, butter, cream, etc., the examination of feces for the tubercle bacillus, and other interesting questions.

In the two chapters concerning the distribution and location of the tubercle bacillus in man, one finds the interesting investigations of Stelégoleff on the influence of laparotomy upon cases of tubercular peritonitis, published in 1894

In ending a chapter devoted to the trials to obtain immunization the author states that 'the serum therapy so brilliantly introduced by Behring and which has given such encouraging results in human diphtheria is as yet in a period of uncertainty in its application to tuberculosis'

The book is concluded by two chapters devoted to tuberculin

It is seldom indeed that we have opportunity to procure a better example of one of those books which are ever necessary to those whose time or circumstances do not allow them to keep in touch with late developments along any one branch of medical science by means of the various medical periodicals

E. R. LY COUNT

PREGNANCY LABOR AND THE PUERPERAL STATE. By Egbert H Grandin M D, and George W Jarman M D Illustrated with forty-one original full page photographic plates from Nature Philadelphia The F A Davis Co 1895

The authors have made in this volume a valuable addition to obstetrical literature Supposing the student or practitioner to be already familiar with the essentials of anatomy, physiology embryology and pathology, he has here a reliable clinical guide and a key to many trying problems and bedside emergencies

Appreciating the fact that the dicta of science are subject to frequent change with admirable impartiality Drs. Crandin and Jarman seek to give the weight of current authority uninfluenced by personal or class preference "Direct in its statement wherever facts warrant such directness, whenever there appears ground for difference of opinion as to fact that which preponderates is given, even though liable to change."—*Preface*

The arrangement of chapters is excellent, and the chapter-divisions and subdivisions judicious We miss the stereotyped text book form with the methodical sequence of headline and paragraph, but this is not a disadvantage The straightforward conversational style of communicating facts is as helpful in the printed page as in the clinic

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waist" is an outside garment of the blouse variety, loose and unlined, and of no possible use as a breast-supporter." To be of any value to the student, the text-book description should be more explicit.

Too much praise can hardly be given to the opening chapter on "The Diagnosis, Duration, and Hygiene of Pregnancy." Such a comprehensive and thorough treatment of differential diagnosis has not appeared in any recent publication. So carefully are the many sources of error in diagnosis pointed out, and so many precautions given against overpositiveness, that the student might feel after once reading this chapter that it is never safe to diagnose pregnancy until the "waters break." But in the face of actual conditions these suggestions will help to clear rather than cloud the perceptions, for, after all, diagnosis is not an exact science, but is the intuitive faculty inherent in a certain class of men, and fostered by use and experience.

Chapter I tells us "We have attained, then (the thirty-second week), the period when the diagnosis of pregnancy may be certified," but we know that a successful conjecture can be made much before this in the case of the ordinary gravida. The average layman can risk an opinion with safety as early as the fifth month. An authority of large experience in clinic and hospital work, making a critical study of this subject over a space of years, has said "In my opinion, a practitioner skillful in making the bimanual examination will be able ninety-nine times out of a hundred, in cases of suspected pregnancy, between the sixth and twelfth weeks to definitely determine whether or not pregnancy exists." This should give courage to the beginner, but should not tend to remit his vigilance in a study of the allied conditions, for of all mistakes which entail awkward consequences to patient and physician, and which are not easily forgiven, failure in diagnosis of pregnancy is perhaps the most notable.

Chapter III deals at length with the Diagnosis of the Presentation and Position of the Fœtus, and has much to commend it, as has The Clinical Course of Labor, The Management of the Normal and Abnormal Puerperium, and The New-born Infant.

In the domain of illustration the new departure is particularly marked, the old-line wood-cuts and engravings being entirely discarded in favor of some clever effects in photography. If our literature is to be thus embellished in the future—and this seems probable—great improvement is to be desired in the treatment of color and motion.

One or two most admirable plates in the collection are open to criticism from the side of photography. The foreground is obscured by ink smears and blotches where red blood is flowing. Plate XLI, however, giving the Byrd-Dew method for artificial respiration for asphyxia in the new-born, is well worth the price of the book.

H. P. NEWMAN

PROGRESS OF MEDICAL SCIENCE

MEDICINE

UNDER THE CHARGE OF JAMES D. HERRICK, A.B. M.D.

Adjunct Professor of Medicine Rush Medical College Attending Physician to the Cook County Hospital Chicago

Tubercular Inoculation of the Skin —

James C. White (*Boston Medical and Surgical Journal*, Dec 5, 1895) contributes two interesting instances, under the ambiguous caption "An Etiological Puzzle."

The first was that of a mother and daughter, the latter 13 years old, both of whom presented lesions of tuberculosis verrucosa upon the hands, multiple upon the child. The lesions had developed within the previous eighteen months. The father had recently died of phthisis, and both wife and daughter had habitually washed the handkerchiefs and other sputum receptacles used by the deceased. Can there be any doubt how the cutaneous infection was produced in this case? Could we devise a more likely method of inoculation than to macerate the epidermis by long immersion in hot water and then apply sputa swarming with active bacilli? Pulmonary tuberculosis was also just developing in the girl. It is not so easy to determine positively how infection of these internal organs was accomplished, but we should not ignore the possibility of secondary infection through open cutaneous lesions in such cases, considering how common it is for children, or even adults, to carry a sore upon the hand to the mouth and suck or moisten it for the soothing effect thus obtained.

The second case was that of a girl, 18 years old, with perfectly characteristic tuberculosis of the lobes of both ears. They were thickened of a dull red hue shiny and slightly scaly, and of a boggy consistence. They had been gradually assuming this condition during the last eight years. It was an interesting problem to determine how two such isolated and symmetrical points could be so uniformly affected. Of course some connection with the boring of the ears at once suggested itself as an explanation, and on inquiry the following data were obtained. The ears were pierced eight years ago. They remained inflamed a long time, in fact they never healed, and this primary condition developed gradually into the present slowly progressive affection. The woman who bored the

ears died soon afterwards of consumption. She used a darning-needle, and threaded it after piercing the lobes. The patient had a sister who dressed the ears while they were sore, and this sister died soon afterwards of "quick consumption." The ears were frequently bathed with cow's milk after the operation.

Accepting the facts as thus elicited, it is evident that there were three possible sources of infection in the case.

First, the operator may have wetted the needle in her mouth, on the supposition that it would enter the skin more readily, or she may have treated the end of the silk in the same way (a common practice) before threading the needle and drawing it through the lobes—both promising methods of infecting the wound with the *bacillus tuberculosis*.

Second, the ears were constantly dressed by the sister who was at the time in "quick consumption." We well recognize what opportunities were thus afforded for the transference of infective material from the one to the other. The fingers of the nurse were probably often contaminated by handling her handkerchief or other receptacle of the expectoration, or the mouth may have been wiped with them after coughing. With these fingers she was habitually making applications to the open wounds. Perfect bodily cleanliness is a far more difficult (often an impossible) condition in country life than with the ever-at-hand water conveniences of the city residence. We must not forget also that dried bacilli from contaminated clothing and furniture of the infected house may have entered the wounds through the medium of the air.

Third, the inflamed ears were frequently bathed with cow's milk to reduce the inflammation after the operation—a common household practice in the country. Now that we have become aware of the enormous prevalence of bovine tuberculosis, and of the consequent contamination of milk, we must admit the possibility of such an origin of the disease in this patient, and of the danger in the bread-and-milk poultice of domestic surgery.

Chills in Typhoid Fever —

Osler (*University Medical Magazine*, November, 1895) notes that in the systematic works on typhoid fever scarcely a reference to chills is to be found, except as a symptom of the onset of the disease. Now and again in the journals a case is reported in which chills have been a special feature, and the complication is spoken of as a manifestation of ague. An important contribution to the

subject was made at the meeting of the Association of American Physicians,* in 1894 in the discussion which followed the reading of Gilman Thompson's paper upon the concurrence of malaria and typhoid fever. Peabody stated that he had twice seen chills in connection with pyemic abscesses in the kidneys. He had also seen "severe chills followed by elevation of temperature as a symptom in typhoid fever, which did not affect the subsequent course of the disease the patient getting well without the administration of quinine, and getting well apparently as other patients do who have not these symptoms." Janeway remarked that the chills were not necessarily due to the development of an intercurrent disease. He held that they were often caused by treatment. 'If we give the modern antipyretics in large doses, chills will occur, which are due simply to the fact that the temperature has been depressed and then it rises, and this rise is accompanied by mild and sometimes by severe chills. Drop your antipyretics and the chills disappear.'

Of seventy nine cases treated to conclusion during the sixth year of the Johns Hopkins Hospital work there were thirteen that began with shaking chills. In two cases there were several severe rigors, in three cases there were two, while in eight the rigor was single.

Bouveret† is quoted as having reported four cases in which chill was noted at the onset of a relapse. This he regarded as due to an irregular or disturbed elimination of the poison. Osler gives two cases of chill occurring with relapse. The first was one of severe primary attack, without chill at onset, and normal temperature on the forty first day, apyrexia for twenty three days, with a severe chill at onset of relapse followed by fever for forty two days. This was followed by apyrexia of forty two days to be succeeded by a second relapse without chills, lasting fourteen days. The second case was one of severe primary attack, followed by a severe single chill at onset of relapse.

Perhaps the most common cause of chills in typhoid fever is the use of medicine, particularly antipyretics. Following a dose of five or ten grains of antipyrin, a chill is not infrequent. Last year he saw, in consultation, a patient who had had chills for ten days and had become very anemic. The physician thought the chills were septic, and was surprised when it was suggested that the antipyrin, which had been given in full doses, was the cause. The chills ceased with the last dose of the medicine.

* *Transactions* vol ix

† *Jour Medical* 1891

He reports a case of chill following a hypodermic injection of sterilized culture of typhoid bacilli, and two following the application of guaiacol to the skin. Chills have also been noted with the onset of complications. In a few instances rigors occur throughout the course of the fever, without any local symptoms to account for them.

Malaria he regards as a very exceptional cause of chill in the course of typhoid fever. In the cases reported in this paper the blood-examinations were negative, though he states that the cases reported by Gilman Thompson appear quite conclusive, as the parasites were found during the chill. Among 333 cases of malarial and 389 cases of typhoid fever in the Johns Hopkins Hospital, in no instance have these diseases been concurrent.

The Value of Lumbar Puncture of the Spinal Canal —

Rieken (*Deutsches Archiv für Klin Med*, bd 56) gives a report of the cases in which lumbar puncture of the spinal canal has been performed in the clinic of Quincke, at Kiel, since 1891.

The cases, thirty-five in all, are described in outline, and are presented also in tabular form. They embrace simple inflammatory meningitis, tubercular meningitis, chronic serous meningitis and chronic hydrocephalus, tumors of the brain, and one case each of acute myelitis, hemorrhagic pachymeningitis, cerebral hemorrhage, uremia with tertiary syphilis, syphilitic encephalomalacia.

The conclusions, which pertain chiefly to the diagnostic and therapeutic value of the procedure, are in the main as follows:

- 1 In lumbar puncture, great attention should be paid to the measurement of the pressure of the spinal fluid. Any pressure above 150 mm is certainly pathological. A moderate increase in pressure with severe pressure symptoms speaks for an acute disease process, while a very marked increase in pressure with but moderate or slight pressure symptoms gives evidence of a chronic affection. In other words, the pressure symptoms in brain and cord disease depend not so much on the absolute amount of pressure as upon the rapidity with which the pressure increases.

- 2 The richness of the cerebro-spinal fluid in albumin is normally less than 1 per cent. In acute affections the percentage may be as high as 2 or more.

- 3 The amount of fluid that can be withdrawn depends upon the pressure, and the capacity of the ventricles. This fluid is generally clear. It contains more cellular elements in the acute inflammatory processes.

4 In tubercular meningitis bacilli are frequently demonstrable (Lichtheim and Furbringer)

5 Blood may sometimes be obtained in cases of hemorrhage into the ventricle.

6 Rarely the free communication between the spinal sub arachnoidean space and that of the brain, and with the cerebral ventricles, may be shut off by pathological conditions, and thus the diagnostic value of puncture be limited by failure to reveal intra cranial pressure and the character of the intra cranial fluid

7 Therapeutically, lumbar puncture relieves pressure In none of the cases of tubercular meningitis here reported was there more than temporary relief

In the cases of serous meningitis, however benefit was seen to follow the operation "In cases 2 and 5 (acute serous meningitis) the improvement in the symptoms followed so immediately the puncture, that there could be no doubt of their connection ' The removal of fluid in these cases, even though it may not be a life-saving operation, ameliorates the condition of the patient and permits of a more rapid absorption of the remaining exudate by the veins and lymphatics Rieken firmly believes that future experience will prove that lumbar puncture is a valuable therapeutic procedure comparable to pleural and abdominal puncture

The technique of the operation is minutely described

Value of Micro-organisms of the Blood in the Diagnosis of Malarial Fevers —

The *Boston Medical and Surgical Journal*, Dec 5 1895, considers this subject editorially as follows

"In a recent paper on 'The Practical Value of Laveran's Discovery,' Dr Wm Osler, of Baltimore, Professor in Johns Hopkins University, states that the medical profession has not yet fully realized 'that the diagnosis of the malarial fevers can be made with certainty by the blood examination'

"From a study of the mortality statistics of the cities of the Atlantic seaboard, Dr Osler points out that the mortality ascribed to malaria is far greater than his nine years' experience with accurately diagnosticated malaria shows it should be This condition of things he believes to be due to inaccurate diagnosis and to the deeply rooted tendency among medical men to consider all fatal cases of recurrent rigors, the causes of which are not clearly apparent, as of malarial origin, when with more probability they may be due to tuberculosis, typhoid fever, or some other infectious

Dr Osler also takes the ground that it is high time that boards of health should refuse to accept the diagnosis of malaria as a cause of death without more definite evidence than is now required

“In view of these positive statements by such a distinguished and experienced observer, it is surprising to read a recent monograph from India, by one Surgeon Lieutenant-Colonel E Lawrie, M B, in which the existence of Laveran's parasite in malaria in general, and in the fevers of India in particular, is denied in the most positive terms At this late day, after all the brilliant work of European and American investigators on the nature and life-history of that organism, a general statement of this kind must be supported by a very convincing array of facts or be treated with contempt ”

Mental Symptoms of Bodily Disease —

Reynolds (*British Medical Journal*, September, 1895) comes to the following conclusions regarding the relation of bodily disease to insanity

- 1 It is a comparatively rare occurrence for actual insanity to develop during the course of bodily disease

- 2 In general hospitals mental disease most commonly occurs after fevers, poisons, injuries, operations, and heart disease (in about this order of frequency)

- 3 In the early stages of fevers and after injuries and operations, mania is the commonest form of insanity, in other conditions depression is more common, but the commonest form is an insanity with marked delusions of persecution (often associated with hallucinations of hearing), such as one sees in phthisis and heart disease and after typhoid fever

- 4 There is no form of insanity connected with special bodily disease, so that it is impossible to diagnose the bodily disease from the mental symptoms present (except the peculiar state of alcoholic paralysis)

- 5 Insanity occurs with unusual frequency in bodily disease associated with peripheral neuritis, as poisoning by alcohol, carbon bisulphide, and lead, pellagra, typhoid, typhus, scarlet and rheumatic fevers, influenza, pneumonia, phthisis, syphilis, septicemia, rheumatism, gout, and diabetes Is it possible that in these conditions the factor which causes the changes in the peripheral nerves causes also similar changes in the multitudinous internuncial fibres in the brain, and so produces disturbances in the normal cerebral reactions which go to make up a healthy mind?

6 When the cause is not continuous—such as the poisons, the fevers, and the traumata—the mental symptoms in the great majority of cases disappear, in heart disease and phthisis they may disappear and reappear from time to time, but in some cases such as insanity connected with gouty kidney, they only disappear with death

Toxic Action of Lead on the Heart —

An example of exceedingly rare complication is given by Janowski (*Neurolog Centralb*, No 7, 1895), who details the clinical history of a plumber, aged 27 years, who in addition to the ordinary symptoms of lead poisoning—colic, constipation, yellowish skin, tendency of the gums to bleed, blue line on the gums fetid odor from the mouth, and a previous ulnar paralysis—exhibited other remarkable symptoms (1) Embryocardia, the pulse at times attaining a frequency of 200 beats per minute, to be the following day normal, this was believed to be due to a direct action of the lead on the cardiac ganglia (2) A paralysis of the two lower branches of the right facial nerve (3) Right sided myosis with diminished light reflex. These latter two symptoms are attributed to lead intoxication, there being no other explanation. Lead was demonstrated in the gums and in the urine

SURGERY

UNDER THE CHARGE OF WELLER VAN HOOK A. B. M. D.

Professor of Surgery in the Chicago Polyclinic

Ligation of the Innominate Artery —

In the *Boston Medical and Surgical Journal*, vol 133, No 6 Dr Herbert L. Burrell of Boston reports a case of ligation of the innominate artery. The literature of the subject is not large, but it is filled with an almost unbroken record of fatal results. The causes of death as the result of the operation have been (1) shock, (2) hemorrhage, usually from the distal end of the artery, and (3) sepsis.

The operation of ligation of the innominate artery has been done twenty nine times, including the author's own case. Twenty six times it was performed for aneurisms of the subclavian artery generally involving the junction of the carotid and innominate arteries and three times for trauma—once each for hemorrhage from the subclavian and from the axillary artery, and once for secondary hemorrhage following ligation of the subclavian

The history of Dr Burrell's case is as follows Patient had always been well until two years ago, when he noticed a little shortness of breath Never had any venereal disease, rheumatism, or chorea Never worked very hard, nor was he of a nervous temperament About eighteen months ago he noticed a "lump in his throat" on the left side, which, on exertion, seemed to throb and to choke him There was no pain The lump has increased in size but very little About a fortnight previous to entrance he had to walk some distance, since which time he has had a good deal of dyspnea and the choking sensation has increased Sleeps well, appetite good, bowels regular, no palpitation of heart

Physical Examination — The patient is well developed and nourished Tongue clean, pulse regular, of good strength and volume, heart area enlarged one finger's-breadth to right of sternum, the apex in the fifth interspace one-half inch to the outer side of nipple Over the entire precordia is heard a blowing systolic and a sharp diastolic murmur, especially well marked over the aortic region, this is transmitted upward and outward into the axilla, and is heard also faintly over the back at the level of the sixth dorsal spine There is a marked pulsation in the vessels of the right side of the neck, where there can be made out a well marked expansive thrill and systolic bruit Lungs Good resonance and respiration over all Liver Dullness from fifth rib to one inch below the costal border Spleen Area not enlarged, edge not felt Abdomen lax, tympanitic, not tender Extremities Well marked pulsation in the vessels at both elbows and wrists, and also in the posterior tibial arteries behind the internal malleoli, especially on the right side, at these places a faint systolic murmur can be made out synchronous with the heart's action No edema Examination of eyes negative Urine 1016, pale, acid, no sugar, slight trace of albumin, no examination of sediment recorded Temperature normal

On January 15, 1895, ether having been administered, the following operation was performed with the co-operation of Dr H W Cushing An incision was made at the anterior edge of the right sterno-cleido-mastoid muscle, extending from the level of the cricoid cartilage to two inches below the upper border of the sternum From this point another incision extended outward to the junction of the outer and middle thirds of the clavicle, a distance of four inches This skin flap, with the fascia and platysma muscle, was turned back The sterno-cleido-mastoid was severed close to its insertion in the clavicle and sternum The sterno-thyroid, sterno-

hyoid and omo-hyoid muscles were divided. This brought to view a fusiform aneurism in the right subclavian and right carotid arteries, extending down and on to the innominate. It was believed that enough of the innominate could be exposed to place a ligature between this fusiform aneurism and the aorta. By means of a half-inch trephine operated by a surgical engine, the right sterno-clavicular articulation and the right half of the notch of the sternum for about an inch down from the top were honeycombed. The bony parts were by this means weakened, and the removal of the articulation and the piece of the sternum was easily completed by bone forceps. A flat copper retractor was slid underneath the sterno-clavicular articulation and the sternum while the trephine was being used, to protect the underlying parts. When this block of bone was removed, there was exposed the right innominate vein and the left innominate vein going down to form the superior vena cava, with the vagus and recurrent laryngeal nerves resting on the innominate artery, all plainly to be distinguished. The wound at this time was filled with bubbling air which had been sucked into the areolar tissue surrounding the great vessels at the base of the neck—an ominous circumstance, admonishing all present that the pricking of any large vein would at this stage prove a fatal accident. Precautions were taken to prevent the entrance of air, by keeping the wound filled with sterile water.

The exposure caused by the removal of a part of the sternum and the sterno-clavicular articulation was extremely satisfactory, and the author can hardly understand how a ligature could be placed on the innominate artery with any safety without a clear view of the anatomical structures involved. The undulating innominate veins and vena cava, the important recurrent laryngeal and vagus nerves, the tracheal tug on the artery, the close proximity of the right pleura, and the expansile pulsation of the artery itself, constitute conditions which require delicacy in manipulation and accuracy in recognizing all structures.

The sheath of the vessel was opened, and the innominate artery isolated. Then came the problem of how the ligatures should be passed. The rule is to pass the ligature away from danger. This was impossible, owing to the size of the vessel and the fact that it was surrounded by important structures on every side. The separation of the sheath of the artery was finally completed by means of the forefingers placed on either side of the vessel. The artery was estimated to be one and a quarter inches in circumference. The ordinary curved aneurism needle was too small to pass about the

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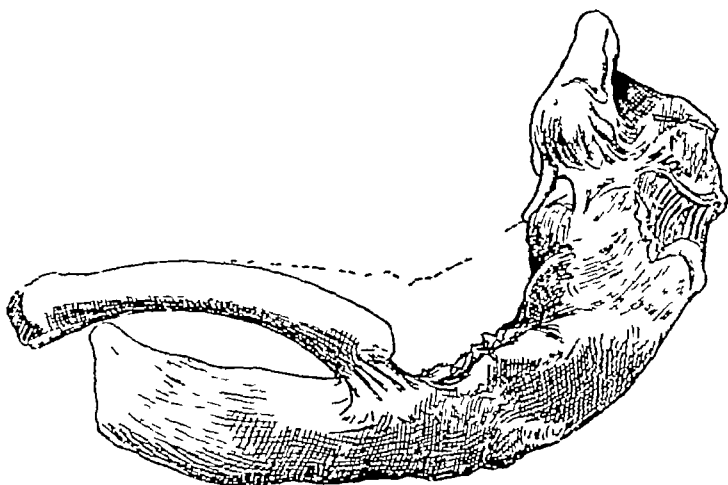
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hyoid and omo-hyoid muscles were divided. This brought to view a fusiform aneurism in the right subclavian and right carotid arteries extending down and on to the innominate. It was believed that enough of the innominate could be exposed to place a ligature between this fusiform aneurism and the aorta. By means of a half inch trephine operated by a surgical engine, the right sterno-clavicular articulation and the right half of the notch of the sternum for about an inch down from the top were honeycombed. The bony parts were by this means weakened and the removal of the articulation and the piece of the sternum was easily completed by bone forceps. A flat copper retractor was slid underneath the sterno-clavicular articulation and the sternum while the trephine was being used, to protect the underlying parts. When this block of bone was removed, there was exposed the right innominate vein and the left innominate vein going down to form the superior vena cava, with the vagus and recurrent laryngeal nerves resting on the innominate artery, all plainly to be distinguished. The wound at this time was filled with bubbling air which had been sucked into the areolar tissue surrounding the great vessels at the base of the neck—an ominous circumstance, admonishing all present that the pricking of any large vein would at this stage prove a fatal accident. Precautions were taken to prevent the entrance of air, by keeping the wound filled with sterile water.

The exposure caused by the removal of a part of the sternum and the sterno-clavicular articulation was extremely satisfactory, and the author can hardly understand how a ligature could be placed on the innominate artery with any safety without a clear view of the anatomical structures involved. The undulating innominate veins and vena cava the important recurrent laryngeal and vagus nerves the tracheal tug on the artery, the close proximity of the right pleura, and the expansile pulsation of the artery itself, constitute conditions which require delicacy in manipulation and accuracy in recognizing all structures.

The sheath of the vessel was opened, and the innominate artery isolated. Then came the problem of how the ligatures should be passed. The rule is to pass the ligature away from danger. This was impossible, owing to the size of the vessel and the fact that it was surrounded by important structures on every side. The separation of the sheath of the artery was finally completed by means of the forefingers placed on either side of the vessel. The artery was estimated to be one and a quarter inches in circumference. The ordinary curved aneurism needle was too small to pass about the

vessel, and the blunt point of the aneurism needle, it was feared might wound important structures posterior to the vessel. A flat copper spatula, three-quarters of an inch in width, curved on its inner surface, was passed about the vessel. As soon as this copper spatula was in position, a flat, braided-silk ligature was passed around the vessel by an aneurism needle and tied in a square knot. It was feared that the extra turn in the first part of a surgeon's knot might tear the vessel. Fully three minutes were taken in securing the first ligature. Gradually it was drawn tighter and tighter until the circulation was completely cut off. The coats of the vessel were felt to give way while tying this first ligature, which was placed three-quarters of an inch from the aorta. The second ligature of silk was



1. Sterno-clavicular articulation, showing loss of substance of sternum and end of clavicle on right side

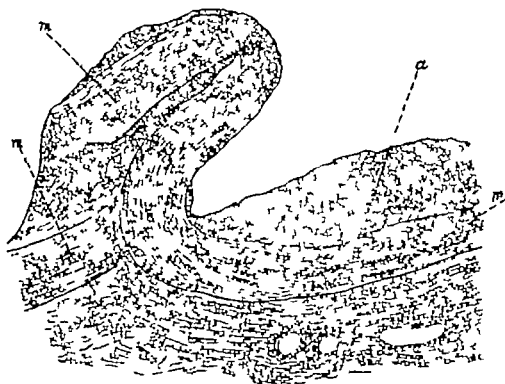
placed in the same manner one-half inch higher up, but was not drawn as tightly as the other, for the coats were felt to give way and the possibility of a tear of the innominate artery was recognized. Both ligatures were tied in square knots and cut short. It was the author's intention to sever the innominate artery between these ligatures, to place the vessel at rest by avoiding the tracheal tug, but the size of the vessel, and the feeling that came to his fingers while tying the second ligature that the artery was not completely closed at this point, led him to give up this step in the operation.

The overlying muscles were sutured in approximately the original positions, and the wound was closed as rapidly as possible, and an aseptic dressing applied. The operation lasted one hour and

a half The pulsation was gone from the neck and from the right carotid and radial arteries The right arm was wrapped in cotton wadding and bandaged to maintain its temperature. After the operation the right pupil was more dilated than the left, and reacted more slowly to light, a relative anemia of the right tympanic membrane was also noted There was very little shock, and very little pain The patient recovered from the effects of the operation and was able to be about freely

On the morning of the 10th day he sat up in bed, complained of shortness of breath, became very pale, his face was covered with profuse perspiration, and he died in twenty minutes

Anatomical Diagnosis —General arterio sclerosis, with dilatation



Section of innominate artery a Thickening of intima in artery m m m Media

and thickening of aorta and large arteries Circumscribed dilatation (fusiform aneurism) of right subclavian, innominate, and right iliac Double ligature of innominate artery Occlusion of artery by the upper ligature, severance of artery by the lower ligature, with consecutive healing, the ligature remaining within the artery, and the continuity of the lumen being restored Heart hypertrophy and dilatation Relative insufficiency of the cardiac valves Chronic passive congestion of lungs, liver, spleen, and kidneys Ascites Pleuritic adhesions over lower lobes of both lungs Old tuberculosis of apices of both lungs, with induration Chronic interstitial orchitis Cicatrices on neck from operation wound Loss of substance of sternum and clavicle at articulation Syphilis

The case cited above seems to teach some very important lessons, and the author summarizes them as follows

1 That a patient with general arterio-sclerosis and an enlarged and dilated heart may be kept under ether an hour and a half, subjected to a severe operation, and recover with but little shock

2 That while the ligation of the innominate artery is not of necessity fatal, yet it will always be an extraordinary operation, fraught with danger from the cutting-off of an extensive area of circulation The removal of the sterno-clavicular articulation and such a portion of the sternum as may be necessary, makes the performance of the operation more practical and one of relative simplicity and safety

3 That the absence of pain or marked discomfort following the operation, the complete relief of all the patient's symptoms, and his almost uneventful recovery, are remarkable

4 That the secondary hemorrhages which have occurred in almost all of the recorded cases were undoubtedly due to local sepsis, and that the recovery of this case was due to the accuracy with which it was possible to place the ligatures, and to the asepsis

5 That if the innominate is ligated at all, two ligatures are necessary, one to act as a breakwater by obstructing the constantly recurring waves of blood coming from the aorta

6 That the collateral circulation was principally established in this case by a downward stream of blood from the right carotid and vertebral arteries into the right subclavian artery That while the fusiform aneurism had shrunk, there was very little fibrinous clot above the second ligature

7 That the unique behavior of the first ligature that was applied to the innominate is perhaps the most interesting fact which is learned from this case When the innominate artery was tied, something in the wall was felt to give way The ligature gradually cut its way through the coats of the vessel, followed by an inflammation with organization which prevented a secondary hemorrhage, and finally rested, organized and probably covered with a smooth layer of the intima, inside the innominate artery This places a new fact at our disposal as regards final disposition of the ligature

Chloroform vs Ether —

The *Chicago Clinical Review* for November, 1895, gives editorially the opinions of twenty-three American surgeons in reference to the use of chloroform and ether as anesthetics in general surgical practice The opinions were secured by correspondence The con-

clusions, which will doubtless be valuable to the general practitioner in determining his choice of anesthetics, are as follows

1 By far the larger number prefer ether for undifferentiated cases and routine surgical work.

2 Chloroform is occasionally used by the strongest advocates of ether

3 The principal reason for the preference given to ether is because it is considered safer, and not because of the limited time or convenience of the operator although one operator contends that ether is both quicker in its effect and more easily managed than other anesthetics

4 The preference given to chloroform seems based upon its comparative facility of action and limited after effects, without reference to the occasional fatalities that follow its employment Only one operator among those preferring chloroform reports a fatal accident in his practice

5 On the other hand, among those now preferring ether, no less than nine have had deaths from chloroform

6 In the administration of chloroform the drop method should be followed strictly, one gentleman going so far as to say "I consider it next to criminal to pour chloroform upon a towel or cloth, and then place it over the patient's face"

7 In the administration of ether, Allis's method, or the common improvised paper and towel cone is mentioned in each report, indicating a uniformity of application not noted in the case of chloroform

8 Nine report never having had a fatality from the influence of an anesthetic

9 A total of twenty six deaths is given—seventeen under chloroform, nine under ether

10 The conclusions given appear based upon a wide experience, not only with ether and chloroform but with various mixtures

11 Abnormal conditions of the patient call for a selection of the agent to be used Pulmonary and renal affections throw the balance in favor of chloroform, while the presence of cardiac debility, functional or organic, indicates ether

12 Chloroform is largely favored for children and those in advanced life

[The lethal after effect of chloroform is not to be forgotten It has the power of producing cloudy swelling in the kidneys, particularly when repeatedly administered at comparatively short intervals, and this fact ought not to be ignored—W V H]

Hydrocele Combined with Herniæ —

The *Lancet* for August 24, 1895, contains the report of a case of hydrocele of the right tunica vaginalis combined with a complete right inguinal and femoral hernia and an incomplete left inguinal hernia. Mr Collins was called to see the case by a person who stated that "the man's rupture had come down and he was unable to get it back." The patient presented symptoms of strangulated hernia and had vomited several times. There was distressing hicough and pain in the region of the hernia and umbilicus. On examination a hernia was found, strangulated, about the size of a large walnut, dense and hard, to which no impulse was given on coughing. An operation was decided upon, and after anesthesia another attempt was made to reduce the hernia, but without success. The hydrocele was found to be in the way, so that it was aspirated and the usual operation was then performed.

[The editor had a case several years ago in which a right inguinal hernia was coincident with a right hydrocele. He was called to the case to reduce a supposed right scrotal inguinal hernia which had been under the care of two physicians for several days previously. The patient had been anesthetized, and protracted efforts made to reduce the hydrocele, under the supposition that it belonged to the hernia, but no impulse could be felt on coughing. The hydrocele tumefaction could be distinctly separated from the inguinal tumor, the hernia could be separately reduced into the abdominal cavity, and an impulse could be made out on coughing by introducing the finger into the ring. Operation for the radical cure of the hernia and removal of the hydrocele was undertaken at a later time and demonstrated the correctness of the diagnosis.]

Lumbar Puncture of the Spinal Canal —

Lumbar puncture of the spine has received considerable attention lately, particularly with diagnostic ends in view. Stablemann (*Berl Klin Woch*, July 8, 1895) calls attention to the importance of the diagnostic relations of this procedure, but insists that its value lies chiefly in positive findings, and that but little reliance can be placed on negative evidence thus obtained. In tubercular meningitis the fluid drawn off is clear and contains tubercle bacilli, in suppurative meningitis it is turbulent or purulent and contains pathogenic micro-organisms, while in cerebral abscess it is clear and contains no micro-organisms. Lichtheim has never failed to find tubercle bacilli when tuberculosis of the meninges was present, but

other observers have not been so fortunate. If pus is drawn off by lumbar puncture, suppurative meningitis is necessarily diagnosed.

Erasion of the Entire Vesical Mucous Membrane —

Delagenière (*Gazette des Hôpitaux*, 1895, p. 389) states that in a man suffering from hematuria and much vesical pain, he made an incision above the pubes, opened the bladder, and found the mucous membrane so seriously diseased that he removed it entirely, leaving a drainage tube in the cavity for a few days. The man recovered and became able to urinate naturally. Later he died of pulmonary phthisis without any recurrence of the bladder trouble. Microscopical examination confirmed the diagnosis of tuberculosis.

Anesthesia of Vesical Mucous Membrane —

Pousson (*Centralbl. für Chirurgie*) recommends the use of 2 to 4 per cent solution of antipyrin for anesthetizing the bladder preliminary to the use of the cystoscope in the examination of that viscus, in place of the more dangerous and not more certain solution of cocaine.

Splenectomy —

Mr J. Bland Sutton publishes in the *Lancet*, Oct. 19, 1895, an account of three splenectomies, in each of which the patient recovered. Mr Sutton states that he has operated on four cases of enlarged spleen, with four successes.

PATHOLOGY

UNDER THE CHARGE OF LUDVIG HFKTOEN, M.D.

Pathologist to Cook County Hospital, Chicago

AND

E. R. LE COUNT, M.D.

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Recent Researches upon the Pathology and Therapy of Gonorrhea in the Female —

Contrary to the ideas advanced by Bunn, that the gonococcus is capable of growth and the production of certain lesions only upon simple cylindrical epithelium, many authors have demonstrated its pathogenic action upon almost all kinds of epithelium and even in connective tissue. Schwartz, Touton, Duncleker, Pick, Frisch, and Adassolim have noted its action upon pavement or stratified epithelium.

lium, Fritsch, Menge, and Zweifel, in producing a peritonitis, Bockhardt, in an abscess of the kidney, Welander, in a peri-urethral abscess, Saenger, in an abscess of the ovary, Detrone and Kammerer, in purulent arthritis, and Fritsch found it present in large numbers in the submucous connective tissue in a case of proctitis. Wertheim has seen the gonococcus in lymph-spaces of the wall of the Fallopian tube and in the subperitoneal connective tissue. Concerning regional dissemination, Klein (*Monatschr für Gebur und Gyn*, vol 1, Nos 1 and 2, 1895) notes that it may reach the peritoneum by way of the genital canal, that it may enter lymphatic channels and become lodged in the peri-uterine or peri-ovarian tissue, and lastly, as pointed out by Luther, that it may directly enter blood-vessels through lesions produced by catheterization, surgical intervention, rupture of the hymen, etc. Rona attributed the myositis, synovitis, and peri-nephritis, complicating a gonorrhea in a young woman immediately after marriage, to entrance of the gonococcus into blood-vessels torn during coitus. Most authors regard pyosalpingitis as due to a single infection. Wertheim in 116 cases found the gonococcus present thirty-two times, streptococci six times, staphylococci once, but never the gonococcus associated with other pyogenic bacteria. Meanwhile Witte in one case found the gonococcus associated with streptococci, once with staphylococci, and once with bacilli. Cases of buccal gonorrhea in the new-born have been reported by Dohrn, Rosinsky, and Leyden. Kronig has reported a case of gonorrheal ophthalmia neonatorum followed by a gonorrheal coryza and otitis media. Gonorrheal cystitis remained for a long time in doubt, but Welander has proven its existence, and Barlow in nine cases of cystitis found the gonococcus present in two. Gonorrheal proctitis is reported, not only by Fritsch, but also by Tuttle and Neisser. Seifert has reported an interesting case of mastitis in a woman suffering from venereal gonorrhea, which he believed due to the gonococcus. That the gonococcus may cause puerperal fever, is attested by Kronig, Steinbuchel, Prauqué, and Saenger, the last-named observer estimates that 15 per cent of 230 cases of gonorrheal affections of the adnexa and peritoneum originated during the puerperium. Among eleven cases of puerperal fever, Prauqué found the gonococcus present in the secretions from the uterus once.

Experimental Study of Inflammatory Foci in the Brain —

Schroder and Kummel (*Arch für Exper Pathol u Pharmacol*, xxxv, 1895) have made an extensive study of this subject. Dogs

were employed, a small quantity of pure culture of the tubercle bacillus being injected into the brain. The symptoms were first observed in from six to ten days, but soon became severe, and, after a short period of weakness the dogs all died with the general symptoms of a diffuse inflammation of the brain. The authors divide their observations into two classes, according to whether the injections were made into the anterior or into the posterior regions of the hemispheres. In the first division, motor and sensory symptoms were most pronounced, the former consisting of cramps, paresis, and anomalies of coordination, the latter of simple loss of sensibility in the skin. Very rarely was crossed hemianopsia noted. In the second class, there were instances in which no focal symptoms were noted until the end, in those presenting symptoms there was rarely any evidence of paresis or sensory disturbance.

Chylothorax and Chylopericardium —

Arnold Bargebuhr (*Deutsches Arch für Klin Med* liv, 1895) reports two cases of chylothorax, and in addition gives an analysis of the forty-one cases described in the literature, among which he finds only eleven true cases, the remainder being doubtful observations. In five cases the difficulty could be traced directly to a rupture of the thoracic duct, the remaining cases being associated with some disease of the pleura, such as cancer, inflammation, or tuberculosis.

Chylopericardium has been observed but once, in a case of tracheal stricture.

BACTERIOLOGY

UNDER THE CHARGE OF GEORGE H. WEAVER, M.D.,
Demonstrator of Bacteriology, Rush Medical College, Chicago

Post mortem Bacteriological Examination for Diphtheria Bacilli —

Win R. Stokes (*Boston Medical and Surgical Journal*, Dec 12, 1895, p 581) discusses briefly the subject of mixed infection in diphtheria, and reports the results of examination in nine autopsies on diphtheria cases dying at Boston City Hospital, after receiving treatment by antitoxin. All the cases were uncomplicated. In all, the bacillus *diphtheriae* was found post mortem in cultures from the respiratory tract. In eight of the nine cases there was a more or less marked invasion of the blood by the pyogenic cocci. In five cases the streptococcus was found in the liver, spleen, kidney, and heart blood; in one case in the kidney and heart blood, in one case

in the spleen The micrococcus *lanccolatus* was found only infrequently—twice in the kidney, once in the spleen as well In one case the only organism in the viscera was the bacillus *coli communis* In the lungs of all these cases were found the bacillus *diphtheriæ*, streptococci, pneumococci, and the staphylococcus *pyogenes aureus*, either alone or in various combinations

The author concludes that the presence of these various organisms in the viscera enables us to better understand the fatal issue in spite of the antitoxin given, for this agent cannot be assumed to act against any other organism than the bacillus *diphtheriæ* The diphtheria bacillus was found in the kidney in four cases, in the heart in one case, and in the spleen in one case, the proportion being about the same as in cases which had not been treated by antitoxin

The Micro-organism of Measles —

Joseph Czajkowski (*Centralbl für Bakt und Parasit*, 1895, No 17-18, p 511) contributes a further addition to our knowledge of the bacillus which he previously described as existing in the blood in measles The bacilli in the blood vary in length from one-half micromillimeter to the diameter of a red blood-corpuscle, and in cultures grow into long threads They stain well with all the anilin dyes, and in the longer forms a part of the protoplasm often remains unstained They lose their stain by Gram's method They grow best in bouillon or sterile serous fluid from the abdominal cavity, in which a whitish, fairly heavy sediment is formed, which in older cultures becomes yellowish-gray The cultures have no characteristic odor Rabbits were always immune to the bacteria Mice died from septicemia three to four days after inoculation with small quantities of the culture, the bacilli being obtained again in pure cultures from the liver and spleen

The author believes the bacillus described by him to be the specific cause of measles

A Case of Diphtheria of the Skin —

Flesch (*Berl Klin Woch*, 1895, No 43) reports an interesting case in a child of $2\frac{1}{2}$ years On August 3 the child was burned with hot water, the wound extending over the right side of the face, the neck, the breast, and as low as the umbilicus On August 10 the neck was healed, and the mother kissed the child over the healed surface after the removal of the dressings On the following day the mother developed diphtheria, and later the father also Both recovered The neck of the child remained free until August

13, when there appeared on its left side, where the mother had kissed it, a swollen area four centimeters in diameter covered with a whitish deposit and surrounded by a marked edema which extended up over the face. The white surface was raised, and sharply circumscribed by an intensely red, narrow zone. The bacteriological examination gave typical diphtheria bacilli. The child recovered after two injections of serum. The case is interesting from the source of the infection, and also as fixing the exact time of incubation.

The Biology of the Gonococcus —

Stenuschneider and Schaffer (*Berl Klin Woch*, 1895 No 45, p 984) conclude the report of their investigations regarding the gonococcus as follows

(1) For growth of gonococci, blood serum or serous fluid from man affords the best soil, next to this must be ranked the serum or serous fluid from cattle, sheep, dogs, and rabbits. (2) Urine agar as a culture medium has not proved reliable. (3) Wertheim's plate method is better carried out by means of a sterile brush. (4) A temperature of 40° C for twelve or more hours not only stops the growth of gonococci, but kills them. (5) Room temperature checks the growth of gonococci, but does not kill unless the exposure is prolonged. (6) In water or urine mixed with gonorrheal pus, gonococci may retain the ability to grow one to two hours, and under some circumstances even longer. (7) The introduction of gonococci into the subcutaneous connective tissue causes no pus formation.

THERAPEUTICS

UNDER THE CHARGE OF N. S. DAVIS JR. A.M. M.D.,

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Treatment of Amenorrhea —

Lutaud, in *Maladies des Femmes* (*Therapeutic Gazette*, November 1895), advises, in the treatment of amenorrhea local and general measures, which are to consist in efforts to increase pelvic congestion, if the lack of flow be due to anemia of these parts, and to improve systemic tone by the use of hematics and stimulants. Of the general measures, we have for the purpose of improving the health of the system gymnastic exercises, hydrotherapy, sea bathing, and saline spring baths. Often the following tonic prescription will prove useful

Bichloride of mercury	1 grain
Arsenate of sodium	1 grain
Strychnine sulphate..	1 grain
Potassium carbonate..	30 grains
Sulphate of iron	30 grains

M ft in pil no 60 Sig One pill after each meal

If for any reason it is thought that the stomach is too feeble or
ated to take the mercury, the following may be substituted

Arsenate of iron	2 grains
Extract of nuxvomica	15 grains
Sulphate of manganese	75 grains

M ft in pil no 60 Sig One pill after each meal

Should constipation be a prominent symptom in the case, the
owing prescription may prove of value

Carbonate of iron	75 grains
Ammonia	75 grains
Aloes (Socotrine)..	75 grains
Syrup, q s	

M ft in pil no 60 Sig One after each meal

When the amenorrhea is accompanied by obesity, active purga-
a must often be employed, and increased at the approach of the
od Thus

Aloes ..	15 grains
Rue	7 grains
Savin	7 grains

M ft in cachet no 10 Sig One after each meal, or the oils of savin and rue may be

After expressing little belief in the newer remedies for this con-
on, Lutaud states that Pollak has gained success in obstinate
es by the use of *Mempanthis trifoliata* This is given in infusion,
de by adding one ounce of the drug to six ounces of boiling
ter, macerating it overnight, and is taken in small quantities
ring the next few days

The local treatment, after hot douches have been tried and
led, consists in catheterizing the uterus or introducing tents to
ate a stenotic cervix Intra-uterine electrization is often of
vice, Lutaud believes Before any attempt is made to pass an
trument into the uterus, the following anesthetic injection should
employed, in the dose of one or two cubic centimeters Cocaine
drochlorate, 1 gram, distilled water, 4 ounces If electricity is
ed, the positive pole is to be passed into the uterus and the nega-
e placed on the lumbar region

Addison's Disease Treated by Supra renal Extract.—

Dr Sansom (*Medical Week*, November, 1895) describes the case of a farm laborer, 25 years of age, who was quite well twelve months ago, but seven months ago first noticed weakness with some discoloration affecting particular regions of the body. He looked anemic, but the anemia was more apparent than real, there being no reduction either in the number of corpuscles or in the proportion of hemoglobin. He complained of nausea, but did not vomit. The distribution of pigment was not that of typical Addison's disease, it was very marked upon the face, and in mottlings over the knees, both forearms showed dark sepia spots, the nipples were slightly darker than normal. There were no spots on the mucous membranes. He had night sweats, and complained of giddiness and dyspnea on the slightest exertion. The skin was smooth and soft everywhere, and there was no itching nor enlarged glands. Sensation normal, and the reflexes brisk. The urine occasionally showed a faint trace of albumin, but never any sugar. On admission he weighed 118 lbs and was passing 50 ounces of urine daily.

He was treated with iron and strychnine, and afterwards with small doses of arsenic. After two weeks of this treatment he had lost $1\frac{1}{2}$ lbs in weight, and the headache was, if anything, worse. At the beginning of August, treatment by tabloids of supra renal extract was begun, the usual remedies having entirely failed even to relieve the headache. After a month of this treatment taking first one and then two tabloids three times a day he gained 14 lbs in weight, the headache was much better, he was eating well and was able to take walking exercise every day. At the end of September he was sent to the seaside for three weeks, and the tabloids were stopped.

On October 20 he still complained of the headache, but said he felt stronger. The spleen could just be felt below the ribs and the original patches of pigmentation were certainly much less marked. No vomiting or nausea. On that day was noticed for the first time some dullness on percussion under the left clavicle, and there had been slight hemoptysis. There was no history of tuberculosis or scrofula in the family.

In the discussion Dr Althus stated that he had had under observation a typical case of 'bronzed diabetes' which had improved for a few weeks while taking supra renal tabloids but the improvement was not maintained and the case ended fatally. Dr Savill said the distribution of the pigment did not recall Addison's disease, that over the knees resembled the effects of roasting them before the fire.

Guaiacol in the Local Treatment of Articular Tuberculosis —

Dr Bonome (*Medical Week*, November, 1895), in the treatment of surgical tuberculosis, has successfully employed a 20-per-cent solution of guaiacol in oil, which he injects into the tubercular focus, as well as in the immediate neighborhood. He has also applied this solution directly to the diseased bone. With this object in view, he uncovers the epiphysis by means of two lateral incisions, or one in the median line, after which a series of perforations are made in the end of the bone, passing completely through it, and in these sponges soaked in a 20-per-cent solution of guaiacol in glycerin are introduced. This dressing is renewed at first daily, then every other day.

In addition, he injects the guaiacol solution into the peri-articular tissue and the intra-articular growths.

The largest quantity of guaiacol injected at one sitting was 10 Cc., not counting the amount soaked up by the sponges used in dressing the bone. The treatment has invariably been well borne.

On the Use of the Blood of the Viper and Common Adder as an Antivenomous Substance —

Drs Phisalix and Bertrand (*Medical Week*, November, 1895), having shown that the blood of the viper and common adder contains toxic principles analogous to those of venom, have since carried out further experiments, the results of which suggest that the immunity of these animals is not due to habituation. Having found that the natural immunity to adder poison enjoyed by the hedgehog is due to the simultaneous existence in the blood of this animal of toxic and antitoxic substances, they have endeavored to ascertain whether the same is not true of the blood of the viper also. With this object in view, they subjected viper serum to a temperature of 58° C during fifteen minutes, and then injected it into the peritoneum of several guinea-pigs. Half a cubic centimeter of normal viper serum is sufficient to kill a guinea-pig, but several cubic centimeters of the heated serum caused no ill-effect, which proves that the toxic substances normally contained in the serum had been destroyed. Dr Calmette has already called attention to the fact that the blood of the naja tripudians, naja haje, rattlesnake and horned viper loses its toxic properties when heated for ten minutes at a temperature of 68° C.

Moreover, injection of heated serum immunizes the animal against the poison.

The antitoxic power of this heated serum is considerable, for on

several occasions an injection of 0.25 Cc. proved sufficient to immunize a guinea pig against a lethal dose of poison but this immunity passed off within a few days.

Similar experiments with blood of the common adder gave the same results, except that the antitoxic power in this case was somewhat inferior to that of viper's blood.

In the viper and common adder, therefore, as in animals which have been artificially vaccinated, antitoxic substances are produced by a defensive act of the organism, and it is possible that the immunity of these reptiles to their own venom is the result of auto-vaccination, as it were, rather than habituation. In any event, the existence of anti-venomous substances in their blood is a point of great importance in respect to general physiology, because it proves that, in proportion as the cells of an organism secrete toxin, an antagonistic reaction takes place which results in the formation of a specific antitoxin.

Anthelmintic Powder for Children —

Dr. Jose E. Ferran, in the *Medical Week*, November, 1895, recommends the following formula:

R Benzonaphthol.....	2 Gm.
Santonin.....	1 Gm.
Sugar.....	5 Gm.

Mix, and divide into twenty powders.—From two to five powders daily.

After expulsion of the parasites, Dr. Ferran administers benzonaphthol with or without magnesia during from two to four weeks, in order to prevent reproduction of the intestinal worms.

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN, A. M., M. D.

Professor of Clinical Gynecology in the College of Physicians and Surgeons of Chicago
Professor of Gynecology in the Post-Graduate Medical School, Vice-President
of the Chicago Gynecological Society, etc.

How to Cure Eclampsia —

Dr. Emory Lanphear does not claim to be an obstetrician, but while professing to be "nothing but a plain, every-day surgeon," in the *Texas Medical Journal*, he says "I have seen a considerable number of cases of puerperal convulsions, and know how to cure the disease—which cannot be said of all the obstetricians if I may judge by most of the recent contributions upon the subject. But can life be saved in puerperal eclampsia? It can if the patient be

seen within a short time after the onset of the spasms. How? by the following methods

“(a) In puerperal convulsions occurring prior to delivery, the first rule is to chloroform the patient, second, to send for an assistant, if possible to get one quickly—if not, let the husband or some one else give the chloroform under close watching—as extreme haste is necessary, third, to empty the uterus at once, fourth, to put in practice the method presently to be described, if the seizures return after delivery

“The prime object is immediate delivery of the fetus—all authorities agree upon this. But the method of so doing is not given anywhere to my satisfaction. The practice I follow is this. If the os be dilating and dilatable, I rapidly enlarge the opening until the long forceps can be applied to the engaging head, or the hand can be introduced to perform version and speedy delivery. In many cases this can be done inside of a half-hour. If not, then the proper thing to do is to take the scissors and cut the cervix freely upon each side, clear up to the cervico-vaginal junction, thus producing an artificial double laceration of the cervix uteri. This will give plenty of room for the passage of the forceps and the child. The only precaution to be observed is to be certain not to cut through the vaginal wall. If the outlet be very close, as in primiparæ, I do not hesitate an instant about making a clean cut through the perineum also, but not through the muscle near the anus. As soon as the placenta is removed, the os is to be caught and pulled down so as to allow six or eight stitches to be inserted in the cuts in the cervix. The perineum, if injured, is sewed up, irrigation practiced, and then anesthesia discontinued. Generally this will be all that is needed

“If there be any abnormality of the pelvis, if the os be so high and so contracted as to render the operation I have just described impracticable—as may possibly occur sometimes—Cæsarean section is justifiable

“After delivery, some simple remedy to excite the activity of the kidney and tranquillize the nervous system will be all that is needed

“(b) In puerperal convulsions occurring after delivery, whether effected naturally or artificially, we have to deal with a more serious problem, but one easily solved by the following plan of treatment. Open a vein and inject from one pint to one quart of normal salt solution. This dilutes the toxins which cause the convulsions, and increases the arterial tension to such an extent as to restore urine-

secretion even if there be total suppression, within half an hour urine will be found in a bladder previously empty, in a vast majority of cases

"In a few cases this effect does not follow, in which spasms return in an hour or so. If they do another intra venous injection should be made, and the second dose of salt water will suffice. In only two cases has a third injection been necessary. It is surprising how quickly the urinary suppression will disappear under this treatment. It is not difficult of execution. There must be (1) a large hollow needle, (2) a piece of rubber tubing, and (3) something to act as a funnel. Water that has been filtered is put into a clean pot and boiled, a teaspoonful of common salt being added to each quart, and allowed to cool to 103°. The skin is next cleaned over some convenient superficial vein, and the vein laid bare by an incision of an inch or an inch and a half, it is temporarily covered by a piece of gauze or perfectly clean cloth. Then the funnel (preferably a glass one, but it matters not) is attached to one end of the rubber tube, and the needle to the other. This apparatus is scalded out thoroughly, and then the funnel is filled with the hot salt solution and the stream allowed to begin running. While the fluid is still running, the needle is inserted into the vein, the funnel is kept about three feet above the level of the patient must be kept full by constant pouring, so as not to admit any air, and the needle must be withdrawn while the stream is still flowing. About twelve ounces is the usual amount needed, from eight to sixteen being the rule according to the size of the patient etc.

'This intra venous injection of normal salt solution is thus easily performed, and may be relied upon to give relief if carried out properly at an early period, before the nerve centres become too badly poisoned to revive.'

Puerperal Pyemia, Septicemia, and Sepsis.—

So much uncertainty envelops the differential diagnosis of these diseases that expert testimony in regard to their nature and treatment is always welcome.

Dr Frank H. Murdoch (*Pittsburg Medical Review* vol 1x, No 5) gives the history of cases illustrative of each affection, and says of the symptoms and treatment

"Pyemia is not a specific disease. There is no evidence that other organisms than the ordinary pyogenic ones the staphylococci and streptococci, are ever present. It is characterized by repeated rigors metastatic abscesses, and diffuse inflammation of the serous

and synovial membranes in particular, and rarely begins during the first week of the puerperal period. The duration of pyemia is, in the majority of cases, from a week to ten days. It may, however, prove fatal in forty-eight hours, or, on the other hand, it may be prolonged for weeks, or even years. There are cases of chronic pyemia, as the one cited, in which women suffer for many weeks with a succession of abscesses in the limbs, and usually, after long suffering, recover. Mr Pollock cites the case of a lady confined on July 9. On August 8 she was attacked with violent rigors, fever, sweating, and rapid pulse, in fact well marked symptoms of severe pyemic fever. After fifteen days she grew slightly better. Early in September there was a recurrence of the symptoms, which continued till October 29, when she had pleuro-pneumonia. This subsided, but the rigors continued, and in the latter part of November Sir Thomas Watson diagnosed consolidation and secondary abscess of the lung. She eventually made a complete recovery.

“Septicemia”—In the strict sense of the term, this name should be reserved for an acute specific disease, caused by a micro-organism which multiplies in the blood, so that the most minute trace can communicate it by inoculation, as in the case of anthrax. Osler says the symptoms usually set in within twenty-four hours, rarely later than the third or fourth day. In the cases here mentioned, the chill in one case (and there is usually but *one* chill) occurred forty-eight hours after delivery, and in the other case in thirty-six hours. The outlook is always serious. Death may occur in forty-eight hours, and in fatal cases life is rarely prolonged more than seven or eight days. In regard to the treatment, Van Ramdohr says all local treatment is of no avail. The one remedy is alcohol in extremely large doses. Moullin says treatment is of little use. Boldt washed out the abdomen in four cases, but the patients died. Hysterectomy has been suggested as a possible remedy in these desperate cases, but as the chill is usually, if not always, the first signal of danger, who shall say whether at the time of the chill micro-organisms are still confined to the uterus and tubes, or whether they have already invaded the regions beyond?

“Sapremia” is a septic intoxication, caused by the ptomaines produced in wounds by the putrefactive bacteria. The symptoms vary with the dose absorbed. As in the case reported, there is usually a chill, followed by high fever. All the symptoms subside quickly as soon as the cause is removed. It is in puerperal fever the result of sapremia caused by the absorption of these ptomaines from dead tissue in the uterus that curetting and intra-uterine douches

give such brilliant results. The supply being cut off, the poison already absorbed is soon eliminated, but when the specific germs of septicemia enter the blood they rapidly multiply there, and consequently curetting and irrigating the uterus are of no avail."

Suppression of Urine after Abdominal Section —

Eugene Boise, of Grand Rapids, Mich., (*Annals of Gynecology and Pediatrics*, 1894, No. 3, p. 153) says it is important that this condition should be watched for and not neglected, as it is by no means of rare occurrence, and a fatal result may be largely dependent upon it. The amount of urine secreted depends on the relation of the blood pressure within the capillaries of the glomeruli to the pressure within the convoluted tubules and efferent vessels. The amount of urine secreted, therefore, depends on the fullness of the renal artery and the velocity of the current through the capillaries. Severe or continued contraction of the renal vessels will necessarily cause marked diminution in the quantity of urine secreted, or suppression. Therefore, any factor that causes severe contraction of the renal vessels may cause suppression.

Causes acting as irritants on the general vaso-motor system cause arterial contraction, and therefore lessened urinary secretion. Also, in general arteriole contraction the veins are overloaded, and therefore the current is retarded in proportion.

Irritants excreted by the kidneys may cause suppression by causing acute nephritis. Ether has been classed as such an irritant. In the author's experience he has had serious kidney trouble but once following operation. The opinions of other operators regarding the effect of ether on the kidneys are very variable. In a series of observations made under the author's direction it was found that in all cases there was a strong odor of ether in the urine after the operation, and in nearly all cases a transient trace of albumin. The color was darker and the quantity greatly diminished during the first twenty-four hours. In no case could any influence on the secretion of urine, which could positively be said to be due to the action of ether, be perceived. Korte and Garre are quoted as stating that, in their experience and belief, ether has no ill effect on urinary secretion, does not cause nephritis, and the only contra-indication is pulmonary disease. The author believes that suppression is due to the direct irritation of abdominal vessels by opening the abdomen, aggravated by reflex irritation of the renal plexus by injury to other parts of the abdominal sympathetic causing contraction of the renal arteries, also to the direct depletion of the blood vessels, thus lower-

ing the pressure by the removal and withholding of fluids, and possibly also to the irritant effect of the anesthetic

The writer's treatment of this condition is to avoid using more ether than is absolutely necessary, to replenish the blood-vessels by free use of hot water per rectum, as it is there easily absorbed and retained, is painless, and brings the soothing effect of heat in close contact to the renal and solar plexuses, allaying irritation and relaxing the arterial spasm. The author uses hot water in this manner immediately after every abdominal section. He also combats the arterial contraction by use of nitroglycerin and codeine, as they are sedative to the sympathetic system and dilate the arterial system

PEDIATRICS

UNDER THE CHARGE OF W. S. CHRISTOPHER, M.D.

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The Causes of Mental Impairment in Children —

Dr J. Madison Taylor contributes an interesting article upon this topic to the *American Medico-Surgical Bulletin*. The causes of mental impairment are twofold—remote and immediate, or essential and accidental. The really fundamental, essential causes of mind-impairment are those degenerative influences which have to do with producing instability of the nervous centres and cells. The determining causes are of great variety, but rarely (almost never) such as are capable alone of producing mental degeneration. While it is of vast importance to study the real causes, little can be done remedially except as a result of the widest study of therapeutic means. During the period of brain growth in bulk up to the seventh year, when the full size and weight are commonly attained, nutritive influences are of the largest value. During these early years there is more formative power and less output of energy. The brain of the baby consumes more oxygen and produces more carbonic acid and urea. The chemical constitution of the muscles is different, and no doubt the neurin of the nervous centres also, the latter are more subject to proliferative diseases, and less to those of disordered function and degeneration. One of the most important qualities of the brain during this formative epoch is deficiency in resisting power. This inability to resist hurtful influences from without or from within is the very keynote of the child's physiology, the index to its vital force.

The wide variations between functioning power in structures

which are, to all our present means of investigation, of practically similar structure, are the special realms for promising investigation in the future. Whatever interferes with this delicate budding of energies and gathering of potentialities leaves there its blighting mark for all time. The unique fact about the nerve-cell is the extreme slowness with which it develops function after its full bulk has been attained. Small differences in amount or condition of the blood, its acidity or alkalinity, its cleanliness or toxicity, and the pressure maintained in the cerebral vessels, from whatever cause, especially if continued just a little too long, may cause irreparable hurt, or such damage as requires much time and perfect condition for repair. Krafft-Ebing shows the close relationship of alcoholism and mental disease by the analogy of acute alcoholism, melancholia, and imbecility. Beginning with slight maniacal excitation, the thoughts flow quickly, the quiet become loquacious, the modest bold, muscular action becomes impaired, the emotions become exalted, as shown by laughing, singing, and dancing. Then follows loss of control over ideas and moral impulses. The victim becomes cruel, cynical, dangerous; the mind weakens, consciousness grows dim, illusions arise, he stammers, staggers, and becomes a temporary paralytic and afterwards melancholic. Of the degenerating influences, alcohol stands at the head and admittedly accounts for nearly one half the cases of insanity, imbecility, and crime, and if one considers fairly that the other causes usually acknowledged are themselves attributable to the alcoholic tendency, these must be added to the other, and the blighting influences of alcohol are thus augmented until they may be said without exaggeration to overlap all other factors. The use of alcohol causes degeneration of mind and body in the individual, and is prominent in transmitting the influence to the next generation. Alcohol produces disorders not only of intellection, but of morals, hence it often becomes the basis of criminality. Moreover alcohol admittedly decreases the power to resist evil and disease, and thus increasingly from one generation to another. Lack of resistance to evil produces the criminal; loss of resistance to disease opens up the way for other morbid influences, as tubercle and the various infectious processes which are themselves direct and tributary causes of degeneration and mental defects.

Malnutrition is a powerful exciting cause, and it is competent to irretrievably damage the brain. Melancholia often occurs in certain anemias, and is a transient state in many toxemias, notably that due to the uneliminated by-products of katabolism.

The quality and condition of the mind are profoundly dependent upon the integrity of the material of which the brain and nerve centres are made and by which they are maintained—more so than upon any of the living influences of a psychical, moral, or transcendental nature. Whatever else may be the distinguishing feature of the mind, nothing can be predicated for good of a faulty structure of the organ of the mind. Consanguinity of parents does certainly seem to influence offspring disastrously. Faulty habits of thought and action, early established by accidental conditions, mould character and influence mental growth. Suppose a child to be endowed with normal brain and mind and with perhaps no less than usual audacity, but yet with impaired power of articulation, as from some anatomic defect, cleft palate, etc., or the more common disorder of stammering. As companions learn his difficulty in giving utterance to spontaneous thoughts, they take advantage of him in various ways. Gradually such a sufferer shrinks from competing in games which involve generally a good use of voice as well as of muscle. Soon the conviction grows that he is defective and undeveloped, he is set apart from his fellows, and instead of the bold, vigorous stand for which his mind and limbs amply fit him, he drops into the background. His character and mind are checked in growth, he fails to become what he should, no matter how well he may succeed. Of course there is precedent for stammerers attaining great success, but there must be within, the unconquerable fire of genius, admittedly a rare possession.

Dr De Forest Willard says "In my opinion the chief surgical causes producing mental enfeeblement in children are, injuries to the brain by the application of forceps during birth. The traumatism of the brain and of the meninges subsides, with resulting inflammation and inflammatory thickening, producing changes which are frequently followed by both mental and muscular deficiency. Unfortunately a distinct fracture or definite depression is only occasionally capable of diagnostic demonstration."

Dr G Hudson Makuen, whose experience in treating speech-defects is unusually large, says "We cannot overestimate the value of speech as a factor in the mental development of children. Some form of expression seems to be necessary to the fullest mental activity and growth. It may be conceded that thought precedes expression, but certain it is that the former not only follows hard upon, but actually depends upon the latter for its development. Deprive the child of all forms of expression, and you remove the greatest incentive to mental action. The chief mode of expression

is speech, and, if you would make possible the fullest mental activity, give great care to the cultivation of easy, natural speech. Look well after any obstruction to speech development in the vocal and respiratory organs. The slightest thickening of the nasal mucosa or of the pharyngeal or faucial tonsils, greatly interferes with natural speech and thus indirectly makes an impress on the mind, the magnitude of which is out of all proportion to the cause of the trouble. In children with adenoid growths in the vault of the pharynx, the vacant stare, which is a fairly accurate picture of the vacant mind within, is due more to the faulty breathing than to its concomitant faulty speech. Enlarged faucial tonsils, which may interfere very little with respiration, give the same facial characteristics. And I have seen cases of defective speech due to tongue-tie and other causes entirely independent of adenoid thickening, in which arrested mental development was reflected in the countenance in exactly the same manner.

Dr. Harrison Allen remarks: "If by any chance a child already on the border line between normal and abnormal intellection is a sufferer from adenoid overgrowth, we can well understand how the condition named may push it on the wrong side of the line and keep it there."

Dr. James K. Ewing, summarizing the causes of mental impairment from the standpoint of the orthopedist, says: "Congenital syphilis particularly impairs development of the encephalon by premature co-ossification of the cranial sutures. In severe cases this lesion produces microcephalus, but in milder forms there is simply closure of the fontanelles. Between these two forms every degree of impaired mental development may exist. The probability of cases of mental impairment from cerebral palsy is very large. They are not to be confounded with infantile spinal paralysis, in which there is no impairment of the mental development present. There may be hemiplegia or bilateral hemiplegia, diplegia, or paraplegia. The hemiplegic cases are usually due to a hemilateral lesion of the cerebrum, usually a sclerosis or an atrophy or a porencephalia. The diplegic cases are due to the same causes, but the lesion is usually bilateral. The paraplegic cases are usually the remains of a slight cerebral lesion which has disappeared but left a mild descending degeneration of the cord. In all of these cerebral palsies there is more or less impairment of mental development. In the majority of cases of rickets there is an impairment of mental development, which apparently disappears sooner or later as the child is relieved of its impaired nutrition. But the shorter stature, the changes in

the cranial bones, and the tendency to excessive perspiration, which remain throughout life in some cases, are associated with slight impairment of mental development "

A clear history or clinical picture of syphilis may explain a certain group of juvenile dementias after four or five years of age. Before that the status of the mind can scarcely be rated. Febrile and post-febrile states are responsible for many manias, the febrile processes bearing the burden of the largest responsibility being typhoid fever, scarlatina, measles, rheumatism, and diphtheria. A very important cause of mind trouble is neurasthenia, or lowering of the central energies by various forms of exhaustion exhibiting widely varying states of neuroses until the normal responses are fatally impaired, as manifested in the individual and even more so in the offspring. Depressing influences are especially hurtful to children, as deprivation of proper home comforts, with harsh treatment, irrational punishment, brutal scolding or cruelties can crush out all intelligence, and do worse in causing the child to stem the current of abuse by cunning, subtleties, lies, and thievings. The nutritive defects alone produce incalculable harm, even admitting that no physical bias coexists. Mind is absolutely conditional upon brain competence. Nutritional disorders, as rickets, tuberculosis, etc., are familiar backgrounds for all nervous diseases. Organic defects, as of kidney, heart, lungs, etc., are not shown to be of so grave an import as in the adult, but when present are occasionally responsible for manias. Excess of heat, either by fever or by sun, or low temperatures long continued, exert a more recognizable effect. City life may be the cause of an immense deal of damage to germinating minds. The perpetual round of stimulants and excitements may do great damage to the child which, as Peterson says, "is a bundle of nerves and centres and reflexes in a state of great activity, prepared to receive, store up, and re-energize a world full of new impressions suddenly thrown upon it." Once the seeds of mental derangement are recognized, the only hope for adequate repair lies in instant protection, ample safeguards, years rather than months of rest, with the burden of responsibilities as light as possible.

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.

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Tic and Facial Spasm —

The subject of facial tic and spasm is one of the most obscure and difficult in the perplexing domain of neuro-pathology. Text books are silent or unsatisfactory on the subject, and good isolated papers are a rarity. Although in a general way tic and spasm may be clearly separated, yet in individual cases the diagnostic difficulty may be insurmountable especially if the origin is not known, and yet the prognosis in the two affections is entirely dissimilar. Brissaud (Lectures on Nervous Diseases, Paris, 1895, p. 582) insists that a tic is generally a systematic movement (not an irregular, incoordinate spasm), is always the same in the same patient, and, although in an exaggerated degree, is often the repetition of certain physiological motions, automatic but with a definite object. For example, a common movement is that made by the eyelids as if to exclude a foreign body from the eye*. Clonic spasm, on the other hand, is an involuntary movement in which it is impossible to recognize the least system (functional systematization). He then presents two illustrative cases.

The first patient, a woman aged 35, was afflicted with intermittent contraction of all the muscles on the right side of the face which wrinkled the eyebrow, closed the eye, elevated the corner of the mouth, and threw the cervical integument into ridges and folds. The trouble had followed a period of great distress during which she wept excessively. The contractions appeared especially under emotion, when she talked and when she tried to control them.

The second patient, a girl of 16½ years, had been the subject for a number of years of involuntary, sudden contractions of the orbicularis palpebrarum, accompanied with 'lightning' contractions of one or the other side of the face. The action was exactly like that caused by the entrance of a foreign body into the eye, but in addition a slight momentary dilatation of the nostril and a short inspiration could be observed. Neuropathic heredity was very marked in this case.

The first case the author calls facial spasm, the latter tic. He then passes to a general consideration of the subject, of which the following is a *résumé*:

* Charcot. Leçons du Mardi 1888-9, p. 14.

Tic is, indeed, simply a particular form of spasm "But what is the cause of clonic spasm in general? It is a sudden and transitory irritation at some point of the reflex arc" For instance, most cases of facial spasm take their point of departure from the eye. The sensitive fibres of the trigeminus receive some irritation and transmit it to the nucleus of the fifth nerve, from here it is transferred to the nucleus of the seventh, which then sends a motor stimulus to the orbicularis palpebrarum, and the eye closes. But in this, as in all reflex spasmodic cases, there is a greater or less tendency to extension, and soon other muscles supplied by the facial begin to contract. The influence may then spread to adjoining nuclei in the medulla, and the sterno-mastoid, splenius capitis, etc., take part in the spasm.

"Now let us look at something which is not a spasm limited to the muscles excited through the irritation of the reflex centre, in other words, let us see what is a tic. The movement begins in the orbicularis and spreads to the zygomaticus and platysma. Up to this point it is a spasm, but now we see the tongue projected between the lips and rapidly retracted again, and at the same time there is a slight respiratory gasp, a sort of incipient hic-cough, accompanied with a laryngeal sound. Here is a picture of the essentially complete facial spasm, but sufficiently different from the other to merit another name. This is a nervous tic—that is, a group of muscular actions arising from the excitation of connex centres which are still independent but co-operate for a certain *functional* result. Instead of the action of a reflex centre for simple muscular contraction, we have to do here with a *functional* centre. Such a tic has a constant tendency to spread and invade additional functional territories. Thus a simple inspiratory sound becomes an inarticulate cry, an articulate cry, a word, an expression, and we have the most pronounced form of tic, 'the disease of tics,' in which there is the spasmodic enunciation of words or phrases—often blasphemous or obscene." In this expanded form it is difficult to recognize the little facial tic which seems simply a local spasm, but the nature is still the same, both are really conscious performances and the result of an irresistible impulse. But this association of a number of nuclei for a functional object is not necessary to constitute a tic. The action may be limited to simple closure of the eyelids, and it is in these cases that the distinction from spasm can scarcely be made. Aside from focal disease of the nervous system, acting as a direct excitant to the motor path, facial spasm is simply a reflex action due to some local irritation—an affection of the eyes, nasal

cavity, teeth, etc. But the facial spasm may be transformed into a tic when the cause has been removed and the spasm continues as a *habit*. In short, Brissaud abandons a differential diagnosis based on the character of the movements when these are confined to the face. The distinctive difference lies in the nature of the affection. The spasm is purely reflex, hence spinal. The tic is automatic coordinated, hence cerebral and cortical. More, it is psychic and always conscious or subconscious, and can be voluntarily mastered for a space if only the will is strong enough. But it is almost the rule that these *tiqueurs* are of the weak, the poorly balanced, who can not will, and if for a short time they succeed in mastering the spasmodic impulse they may be seen to retire for a "veritable debauch of absurd movements."

The author then passes to a consideration of tic of the neck muscles, which he calls "mental torticollis," and which is not rare, but is sparingly treated of in the text books. It is not an affection of the muscles, nor of the nerves, but of the mind, and well illustrates the characteristics which have been laid down as those of facial tic. A number of cases are presented in which the patient could control the motion of the head by supporting it with the hands or against a wall, but Brissaud emphasizes the fact that this simply proves the mental origin of the tic, for were it a true spasm such an effort would be useless. This was particularly apparent in some cases in which the pressure of one finger or of a pencil held lightly in the hand, was sufficient to control violent movements. The patient has an irresistible impulse, an imperious necessity to execute movements which could be controlled by the will, but the will is too feeble.

The conclusions as to prognosis and treatment are self evident. Spasm ceases when the cause is removed. Tic requires general mental, not local treatment.

The author calls attention to the fact that general paralysis of the insane may in the early stages occasion local spasms very like facial spasm and tic.

Voluntary Dilatation of the Pupil —

It is said that some persons can cause the pupil to dilate by calling up the mental image of a dark room, and Brucke mentions a physician who could, aside from this, voluntarily dilate his pupils. These cases excepted, the one of Bachterew (*Deut. Zeit. für Nerv.* 1895, bd. 7, p. 478) seems to be unique. The patient, a nervous woman, aged 37, after an attack of pain in the right side of the head

and face, caused by a nasal polypus, noticed in doing fine needle-work a "clumsiness" of the right eye, and looking in a mirror discovered that the right pupil was much larger than the left. After lying down for some time with the eyes closed, the pupil was found to be normal, but a resumption of work caused it again to enlarge, and observing it closely she now discovered that she could voluntarily dilate it. This dilatation always followed close work, and later it occurred regularly during the three days preceding the appearance of the menstrual flow. Accommodation was normal, as was the reaction of the pupil to light, accommodation, and pain. This voluntary dilatation of the pupil was almost *ad maximum*, the diameter being two or three times that of the other.

After a very full consideration of the physiology and mechanism of pupillary movements, and of three hypotheses which might possibly explain his case, the author concludes that the patient was able to voluntarily stimulate the pupillary dilator fibres of the sympathetic, presupposing increased excitability to make this possible. He admits, however, that there are serious objections to this theory, and we must, it seems, accept the case simply as an unexplained clinical fact.

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF W. L. BAUM, M.D.,

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Leprosy, with Special Reference to Kashmir —

Rai Bahadur, Chief Medical Officer, in a paper read at the Indian Medical Congress of 1895, gives a *résumé* of his experience with leprosy in this district. He states (*Indian Medico-Chirurgical Review*, 1895) that the valley of Kashmir has a population of 949,041, of which 883,252 are Mohammedans and 65,789 Hindus. The inhabitants of the valley proper are distinct from the people living on the slopes of the mountains around. Rice forms the staple food of the Kashmiris, this they eat twice daily with boiled vegetables. Meat is also eaten, but daily only by the better classes. Syphilitic diseases are the scourge of Kashmir. Leprosy is a comparatively rare disease. A census of lepers taken, unassisted by medical officers, in 1890, probably including many cases of disease other than leprosy, and excluding many cases of true leprosy in the incipient stage, showed a total number of lepers to have been 202—males

* a case in which menstruation is always accompanied by dilata

168, females 34, Hindus 4, Mohammedans 198 Out of this number there were not more than thirty real Kashmiri lepers It is a singular fact that the Kashmiris are almost surrounded by leper neighbors, among whom the disease must have been prevalent for a long time, in spite of this, Kashmiris living in the valley have been free from the disease. The slopes of the hills are inhabited by a people called Goojars, or cowherds In winter the Goojars live at the foot of the hills, and in summer in temporary huts on the mountains Their food is Indian corn and wheat, and they also use milk and milk products abundantly They live in ill ventilated houses, often overcrowded with men and cattle They are not well clothed They are not beef-eaters, but occasionally indulge in buffalo meat Among these Goojars leprosy is a common disease Lepers are not allowed to mix freely in society in the Goojar country, and a leper has to take his food apart even from his nearest relatives The lepers, therefore, usually come to Kashmir or go to adjoining districts in the Punjab for means of livelihood The Punjab is very hot in summer and the Punjabi lepers find that during the hot season eruptions frequently break into ulcers, which heal in the temperate climate of Kashmir, so annually, a large number of Punjabi lepers flock into Kashmir during summer and live on the charity of the Kashmiris

Heredity is no doubt an important factor in the causation of leprosy Such is the opinion formed by the author after careful inquiry among Goojar lepers He has seen a family with three generations of lepers Of course in many cases, heredity could not easily be traced, but in all such cases unsatisfactory answers were elicited

Is leprosy contagious? He saw one instance of a wife acquiring leprosy from an affected husband Five years after marriage the husband showed symptoms of leprosy, after another five years the wife became affected When he saw the couple they had no children He has seen in a family the grandmother an old woman suffering from a very bad type of ulcerative leprosy attended with fetid discharge and sloughing the affectionate daughters and grand daughters nursing her without the slightest thought of themselves The old woman died five years ago, no other member of the household took the disease From his experience he can cite no instance in which the disease was transmitted from a leper to any member of his family with whom he lived together and mixed closely in social life, except the one referred to above in which the wife was affected

Though leprosy is not common among the Kashmiris, still

Kashmir is resorted to by a large number of lepers for its climate and for a livelihood. These lepers freely mix with the people, sit, eat, and pray with them (lepers are usually found at the doors of Moslem prayer-houses), and no precaution against contagion is thought of, still the disease does not spread among the Kashmiris. In India and in the northern hilly countries we find lepers freely mixing with their relatives, walking about the public streets, leprous husbands having progeny from their unaffected wives, in short, the public is exposed to the disease in every conceivable way. Does it extend in the proportion it ought, if contagion by contact be admitted?

Of course, contagion by inoculation is possible, and often takes place in various ways. All the different ways by which syphilis can be passed from one individual to another extra-genitally hold good for leprosy. In India, people usually have their feet and skin bare, and therefore there is every likelihood of inoculation.

The question of compulsory segregation can only come up when it is finally proved that leprosy is contagious by contact. It is no doubt a loathsome disease, with public feeling strongly against it. The word "leper" is synonymous with everything that is abhorrent. Whether this public feeling is right or wrong, we as scientific observers should lay aside our prepossessions and steer clear of preconceived notions and prejudices.

Then, again, it is difficult to conceive how segregation can be complete, even if it were tried for experimental purposes. Is it always easy to recognize the disease in its early stages? Is it not very common that early stages continue for a prolonged period, during which the contagion, if any, will be equally communicable as in later stages? Does it not sometimes baffle even experienced physicians to recognize and distinguish the disease from several forms of skin disease and neurosis? Will not the rich try to evade, and the poor be subjected to unnecessary hardships?

It is not easy to conceive how isolation can be humanely carried out, and how it can be complete, regular, and perfect, and, unless it is so, its very object is defeated. The author thinks, however, that, unless proved by fresh observations and experience, our present knowledge of the disease does not justify belief in contagion by contact.

Hutchinson's Fish Theory—The Goojars do not get any fish. The author has for some time asked lepers if they were fish-eaters, and in the majority of instances the reply was in the negative. The theory is untenable in India, where the disease is not found to be

more prevalent among fish eating people than among abstainers from such food, as the Vaisnabs. High class Hindu widows are strictly prohibited from taking fish, but the author has seen several cases of leprosy among them. The Kashmiris, among whom leprosy is rare, eat fish—fresh, dried, and salted. But the positive fact that leprosy is common among Goojars completely disproves the fish theory.

Treatment—In the treatment of leprosy, the author has tried chaulmoogra oil, gurjun oil, neem (*Azadirachta Indica*), both internally and locally. He has also tried arsenic, phosphate of soda, mudar (*Calotropis gigantea*). In the ulcerative stage, local applications of gurjun oil or neem oil prove of some value in healing and checking fetor. Creolin or izal does the same. His experience is that none of the above remedies possesses any power in arresting the disease.

In the anesthetic variety he had practiced nerve stretching in over a hundred cases and is of the opinion that in the early stage it produces some satisfactory result. The tracts supplied by the nerve or nerves stretched regain sensation partly, trophic ulcers heal rapidly, and the general health of the patient improves, but these results are not lasting. A patient whose nerve had been stretched and who left the hospital with his condition improved, encouraged by the previous result, usually comes back for treatment with the same conditions as before, and probably with lesions spread over other parts such as the face. This treatment can, therefore, be safely called a palliative treatment applicable in certain classes of the disease in its incipient stage.

The author has never seen a leper cured, but strict medical care is capable of alleviating the patient's sufferings and rendering him comparatively well.

Hutchinson's Teeth and Ichthyosis —

Roussell (*Loire Medical*, 1895), of the Hôtel Dieu Etienne, reports a case in which he noted the presence of Hutchinson's teeth occurring in a patient suffering from ichthyosis. He explains the coexistence of these conditions by the fact that the skin and teeth have a common origin both being derived from the external layer of the blastoderm. The patient, a girl of 21, presented a malnourished, dry, rough inelastic skin, the outer aspect of the arms was covered with small projections due to hypertrophy of the papillæ. These projections were crowned by horn scales which could be rubbed off. The legs, particularly the external surface of them,

with the blind eye while the other was absolutely occluded. Whenever light was thrown upon the cornea of the blind eye with a mirror, it gave him an uncomfortable sensation and enabled him at once to state precisely that the eye was illuminated, although the specific perception of light was totally absent. It could also be seen objectively that the partial closure of the lids, common in inflamed eyes in consequence of tonus of the orbicularis muscle, increased whenever the blind eye was exposed to stronger light.

The observation proves that photophobia is, at least in part, due to the sensitiveness of the corneal nerves to light—a view fully confirmed by the well known calming influence of cocaine upon photophobia. The reviewer, however, does not claim that the dread of light, especially in the form known as dazzling, is solely dependent upon an irritation of the corneal nerves (at least, in the absence of corneal inflammation), but admits that unusual irritation of the optic nerve must also be taken into account.

GENITO-URINARY DISEASES

UNDER THE CHARGE OF G. FRANK LADSTON, M.D.,

Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Chicago College of Physicians and Surgeons

Has Gonorrhea a Specific Microbe?—

In an editorial in the *Philadelphia Times and Register*, Dec. 7, 1895, considerable skepticism is expressed as to the specificity of the gonococcus, as follows:

To the practitioner who is concerned more with the effects than with the causes of diseases, this may seem an unimportant question. However, we can all understand that in our time of precision in diagnosis, and from a forensic standpoint, it is of the greatest importance that the point should be definitely settled.

If it be said that a severe clap, the *chaude de pisse* of the French, can only develop after an infection by a specific germ, or if it be maintained that a suppurative urethritis in an otherwise healthy individual is not infective, contagious, or venereal, then we must certainly take issue with those who promulgate this view.

It is a well known fact that a specific bacillus is commonly found in certain varieties of pharyngitis—as described by Bretonneau, who first gave putrid sore-throat this designation,—but may not be present at all. We are told a “mixed infection” is present. Diphtheria has become an exceedingly common disease, since every type of sore throat with a Loeffler germ present is so labeled by the bacteriologist. On the contrary, with gonorrhea, though the infection never was more general, no case is now so branded unless bacteria are forthcoming which possess certain definite morphological characters, therefore

the preposterous assumption is made that no matter how violent may be a patient's chordee his vesical tenesmus or strangury how abundant the discharge of greenish yellow matter he has no clap unless we find the diplococcus of Neisser, arranged in a certain manner within the pus-corpuscles. He has only 'non specific urethritis'.

Vierordt and others, who have made this subject a special study, say that a diplococcus quite identical with the gonococcus may be found in the healthy urethra. Probably the truth is that the so-called specific microbe of gonorrhea is a cause or an incident only in certain types of the disease. At all events, it is of no consequence in the treatment though some modern writers would have us believe that the infection of gonorrhea works widespread destruction in the neighboring parts if not early and radically treated.

From a medico-legal standpoint we must be cautious not to attach too much importance to the presence or absence of Neisser's microbe. The latest observations on this phase of the question are inconclusive and discordant, and fail to provide us with such definite data as must be forthcoming to establish the innocence or guilt of a suspected party.

It is certainly rather significant that an editorial writer should express himself in such a manner upon a subject which a large proportion of practicing physicians have for some time considered to be absolutely settled. We have repeatedly called attention to the uncertainties of diagnosis involved in the presence or absence of the gonococcus. Mistakes are constantly arising. A case that recently came under our observation is an example of this. A young man who had suffered from deep-seated gonorrheal inflammation nearly two years before, became so discouraged by the results of repeated examinations of his semen by a competent microscopist—who every time reported the presence of gonococci—that he finally broke off a matrimonial engagement. Subsequent examination showed that the germs which had been pronounced gonococci were an indeterminate form of microbe lacking the ordinary characteristics of the gonococcus. We gave the opinion, founded upon careful culture and inoculation experiments that there was no longer danger of contagion, so far as microscopic evidences tended to show.

Cases arise in which careful examination of urethral and seminal discharges fails to show the gonococcus, and yet upon the first attempt at intercourse or upon indulgence in alcoholic stimulants a gonococcal discharge is set up. Here is a very important source of danger. The gonococci may be present in some follicle in the urethra and the active intercourse liberating them may be followed by infection of a perfectly healthy woman. A case of this kind recently came under our observation in which the patient had been assured that there was absolutely no danger of infection. Several

months after a severe gonorrhea the patient married, and two weeks later brought his wife to us suffering from a typical gonorrhea

As far as the medico-legal relations of the gonococcus are concerned, we do not believe it is possible to pass an arbitrary expert opinion as to the origin of a urethral discharge from the presence or absence of the micro-organism. Microscopic opinions upon the witness stand are, in our opinion, practically valueless. A point worthy of consideration is this: that if the gonococcus be the invariable specific cause of gonorrhea, and is highly infectious—which we know the *materius morbi* of gonorrhea to be—then the only essential requisites for infection are (1) a healthy mucous membrane, or one which is not immune to gonorrhea, (2) facilities for the conveyance of gonorrheal secretion from a diseased person to the healthy mucous membrane. This being correct, we fail to see how any intelligent physician can go upon the witness stand and deny the plausibility of the water-closet theory of gonorrhea. We maintain that all of the conditions which are recognized as essential to bacterial infection are fulfilled by the use of public conveniences by healthy and diseased persons alternately. The discovery of the specific microbe of gonorrhea is, in our opinion, something of a substantiation of the claims of certain patients as to the innocent origin of gonorrhea. We do not wish to be understood as denying the fact that gonorrheal patients are prone to deceit, but simply wish to go on record as believing that there is nothing in the claims of patients who attribute a gonorrhea to innocent sources of infection that is inconsistent with the characteristics of the gonorrheal microbe as presented by modern bacteriologists. This is by no means intended to be a criticism of the accuracy of bacteriological investigations, nor is it intended to contradict the gonococcal theory of gonorrhea, it is simply calling attention to a few points which are worthy of serious consideration.—G F L

Aspermatism from Obstruction —

At the meeting of the American Association of Genito-Urinary Surgeons (*Medical News*, June 29, 1895), E C Burnett of St Louis reported a case of early obstruction of the ejaculatory duct. The patient was an unmarried man, aged 35, who at the age of five was operated on for stone in the bladder, left lateral lithotomy being performed. The patient stated that his testicles almost always pained him for a day or so after sexual indulgence. Sexually, he states, he was perfectly normal, excepting that he had never had an emission of semen. The external genitals were well developed

Upon the introduction of an endoscope into the urethra the prostatic portion of the canal was found to be extraordinarily short and the veru montanum so small as to be barely distinguishable from the surrounding tissue. Palpation through the rectum for the seminal vesicles disclosed the fact that they were not appreciable to the touch, and that the prostate was barely definable. During one of his examinations Burnett noticed the scar on the left side of the perineum, and on inquiry was informed of the lithotomy performed thirty years before. In this incident in the patient's early history lay the solution of the question as to the cause of his aspermatism. Obviously in the performance of the operation the ejaculatory ducts were torn across, becoming permanently occluded, and through the occlusion of these ducts there followed arrest of development of the prostate gland and seminal vesicles. • Obstruction of the ejaculatory ducts is given as one of the causes of atrophy of the seminal vesicles, but Burnett could find no reference to any such influence upon the prostate.

Primary Cancer of the Urethra —

A case of this rare affection is reported by Albarran in the *Centralblatt für die Krankheiten der Harn und Sexual Organe*, August 31, 1895. The patient 45 years of age, had never had gonorrhea nor any injury, but had suffered since four years of age from difficulty in urination. Ten months before cancerous symptoms were noticed, a fistula spontaneously formed upon the upper surface of the urethra toward the base of the penis. A large swelling shortly afterwards appeared and extended over the scrotum upon the surface of which several other fistulæ formed, through which almost all the urine was evacuated. The case proved to be one of primary carcinoma of the urethra.

Total emasculation and extirpation of the inguinal glands was practiced in Albarran's case, and was followed by recovery which up to the time of writing had been maintained three months.

Only seven others have been reported, namely those of Cabot, Brown, Schustler, Thiersch, Guyon, Tyzbiçky, and Geriard.

Guaiacol in the Treatment of Orchitis —

A new use for this drug, which is becoming of such seemingly universal application is reported by Balzer and Lacour in the *Annales de Dermatologie et de Syphiligraphie*. They claim excellent success with the drug as an external application in orchitis. In a number of cases one gram of pure guaiacol was used, and in

though of course entitling her to the most considerate and tender treatment consistent with the rights of others, cannot be permitted to stand between the defendant and a legitimate defense against her claim for a large sum of money. When it becomes a question of possible violence to the refined and delicate feelings of the plaintiff on the one hand and possible injustice to the defendant on the other, the law cannot hesitate, justice must be done. Was it essential to the ends of justice that plaintiff should submit to this examination? We think it was.

In the following States the Supreme Court has held the power to be inherent in the court to order such an examination in the furtherance of the ends of justice.

Alabama—Alabama, etc, R R Co *vs* Hill (90 Ala 71), McCuff *vs* State (88 Ala 147)

Arkansas—Sibley *vs* Smith (46 Ark 295)

Illinois—It was first held, in Parker *vs* Ensloe (102 Ill 272), that the court had no such power. Later the court has receded from that view, and the law of Illinois now appears to be that such an order may be granted in a proper case. Chicago, etc, R R *vs* Holland (Ill 461), Joliet, etc, Ry Co *vs* Caul (32 Ill E Rep 388)

Iowa—Schroeder *vs* C R I & P R R (47 Iowa 375)

Kansas—Atchinson, etc, R R Co *vs* Thud (29 Kan 466)

Michigan—Graves *vs* City of Battle Creek (95 Mich 266)

Missouri—Lloyd *vs* R R Co (53 Mo 509), Side Kum *vs* W St L & P R Co (93 Mo 400), Owens *vs* Kansas City and R Co (95 Mo 169), Shepard *vs* Mo Pac R Co (85 Mo 629)

Nebraska—Stuart *vs* Havens (17 Neb 221), Sioux City and R Co *vs* Finlayson (16 Neb 578)

Ohio—Miami and T Co *vs* Bailey (37 Ohio 104)

Texas—I & C U Ry Co *vs* Underwood (64 Texas 463), Mo & R R Co *vs* Johnson (72 Texas 95)

Wisconsin—White *vs* Milwaukee & R Co (61 Wis 536). The power has held not be inherent in the court. Shaw *vs* Van Rensaleer (60 How Pr Rep 143). The court granted such an order, also, in Walsh *vs* Sayre (52 How Pr Rep 324). See also McClelland's Civil Malpractice 304, and an examination of an injured limb by a medical expert called by the opposite party was refused in Archer 2, Sixth Ave R R Co (52 New York Supreme Court 288) *

In McQuigan *vs* Del R R Co (126 N Y 50)

*The Superior Court later held that the power was not inherent in Newmann *vs* R R Co (50 N Y Superior 412) and also in Roberts *vs* Ogdensburgh & R R Co (3 Hun 154). This unsettled state of the law was determined against the right as inherent by the Court of Appeals.

Indiana—Penn Co *vs* Newmeyer (129 Ind 409) Terre Haute R R Co *vs* Bruner (128 Ind 554), Hess *vs* Lavery (122 Ind 233)

Ontario—Reily *vs* City of London *et al* (14 Ont Pr Rep 171)

This decision was made March, 1891, on an appeal from the decision of a master in ordinary denying a motion for an order to compel the examination of a woman who had brought suit to recover damages for an injury in a negligence case.

Such an order had been made in Kerr *vs* Town of Parkdale, but a similar order had been refused in Allen *vs* Township of Tarmouth

The master who denied the motion for the order (Mr Hodgins) placed it upon the ground that By the common law any unlawful "sitting upon" or interference with another person is an assault (insultus), and that the court had no right or power to order to be done by surgeons what the common law forbids, and he held

If these defendants are entitled to this compulsory exhibition and examination of the person of this plaintiff in such a way as their surgeons may determine, it must follow that they have also the right to have a similar exhibition and examination made by or before the jury for a jury is entitled to see as well as to hear for themselves

And if one part of the person may be subjected to such an examination so may every part and thus judicial sanction might be given to a proceeding trenching upon another rule of law governing the exposure of the person

On no principle of law that I am familiar with can acts which involve what is forbidden by the criminal law be authorized by order of court

This decision of the master in ordinary was affirmed on appeal, the opinion, by Street, justice, holding

I am clearly of the opinion that the learned master was right in the result at which he arrived and that this appeal should therefore be dismissed The order asked for if made would carry the law of discovery to a degree hitherto unknown to the English and Canadian law in cases of this nature It is true that in certain exceptional cases parties have been compelled to submit to examinations such as that now asked as for example in action in the English divorce courts for annulling marriages upon grounds necessitating such examinations in order that the court might not be imposed upon. But in actions in our courts the parties have certain limited rights of examination and discovery which are defined by the rules, and judges as well as suitors are bound by them There is no law which authorizes me to say that the plaintiff here must submit to a species of examination entirely unprovided for by any statute or rule of court such an order must be founded upon some authority either in the common law or the statutes, or it could not be enforced, and I find none.

There are American decisions both for and against the granting of such orders. See *Walsh vs Sayre*, 52 How Pr Rep, N Y 334 (1868), *Roberts vs Ogdensburgh*, etc, R R Co, Hun 154 (1883), *White vs Milwaukee City R W Co*, 61 Wis 536 (1884), *Patterson's Railway Accident Law*, Sec 367.

There may, no doubt, be cases in which upon the ground of plain and palpable fraud a judge sitting at Nisi Prius might, in his discretion, postpone the trial of an action in which damages are claimed for any accident, unless the plaintiff should consent to an examination, but, as a rule, a party whose cause of action is matured, whose damage is ascertainable so far as it is ever likely to be, and who is not in default in obeying any order of the court, is entitled to have his case tried unless a postponement is rendered necessary for any of the ordinary reasons.

On the 4th of May, 1891, succeeding this decision, the following Act was passed in Ontario, which is the present law of that province upon the subject

In any action brought to recover damages or other compensation for or in respect of bodily injury sustained by any person, a judge of the court wherein the action is pending, or any person who by consent of parties or otherwise has power to fix the amount of such damages or compensation, may order that the person in respect of whose injury damage or compensation is sought shall submit to be examined by a duly qualified medical practitioner who is not a witness on either side, and may make such order respecting such examination and the costs thereof as he may think fit, provided always that the medical practitioner named in such an order shall be selected by the judge making the order, and provided, moreover, that such medical practitioner may afterwards be a witness on the trial of any such action unless the judge before whom the action is tried shall otherwise direct.

The Supreme Court of the United States, in the case of *Botsford vs U P R R Co* (141 U S 250), held that the United States Circuit Court, District of Indiana, had no right or power to make and enforce such an order as an inherent right.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints or, if they so elect, an honorarium will be paid for original communications.

Books for review, exchanges, and all matters relating to the editorial management, should be addressed to Harold N Moyer M D, 103 State St, Chicago, Ill.

All communications relating to the business management of *MEDICINE* should be addressed to Geo S Davis, Publisher, Detroit, Mich.

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ORIGINAL ARTICLES

STRANGULATED INGUINAL HERNIA OF A CYSTIC APPENDIX VERMIFORMIS *

BY WELLER VAN HOOK A.B., M.D. CHICAGO
Professor of Surgery Chicago Polyclinic.

Leopold M——, German by birth 43 years old, weight 170 lbs, height 5 feet 9 inches, newspaper dealer, had had good health (except an attack of typhoid fever at fourteen years of age) up to four years ago. At that time he had a feeling of soreness at the umbilical region, and a sudden movement or a concussion or pressure upon the abdomen would cause intense pain. As a result of over-exertion in lifting, a right oblique inguinal scrotal hernia was contracted one and a half years ago. The abdominal tenderness gradually increased up to the time I first saw him. He never suffered from indigestion or griping pains. Has always been constipated, the bowels sometimes not moving for a week. He never noticed a tumefaction in the abdomen but on pressure over the iliac and hypogastric regions he felt a sensation of tenderness, but this soreness was not greater upon one side than upon the other. The hernia always disappeared without taxis on lying down, until September 16, 1895, when he noticed that the hernial contents remained in the sac. His own efforts at reduction being unsuccessful, Dr J W Dal was called, after thirty six hours. Dr Dal found a tense swelling in the inguinal canal which he could not reduce without anesthesia. The patient was vomiting fluids from the upper intestinal tract. No gas had passed by the rectum, but this fact may have been due to lack of sufficient peristaltic activity. Under chloroform Dr Dal again attempted taxis, and the tumor seemed to disappear.

Read before the Chicago Gynecological Society December 1895.

APPENDICEAL HERNIA

After the patient recovered from the anesthetic, however, pain was moderate, referred and worse on a different character, radiating over the abdomen toward the umbilicus. The Doctor's observation of the patient's condition was such that the patient's condition was not improved and a consultation was requested. On examination the patient was found suffering abdominal pain, with a slight elevation of temperature. There was tenderness on the right side of the abdomen, in this region the abdomen was extremely rigid, and palpation was difficult. The inguinal canal was distended. In the inguinal canal and extending into the abdomen was a brawny mass not very tense. It seemed to suppose in the absence of clearly marked diagnosis that reduction had been imperfectly accomplished, and that omentum was left in the sac.

After several preparations the sac was exposed by a sufficient incision and carefully opened. To my surprise no omentum was present. The brawny sensation was due to acute inflammation of an unusually thick sac. The lining of the sac was covered and rough, and the wall was covered with matted masses here and there, the mucus, having taken up into pieces, however, on the same at once and ruptured in the sufficient of mucus.

The sac of the hernia was first dissected free and cut off at the celiotomy wound, a number of iodoform gauze capillary drains were applied carefully in different directions in the abdomen, and the caput coli drawn well up to the wound. The appendix was then ligated close to its base and amputated with scissors. The suture used to ligate the appendix was left long enough to be passed through the eye of a needle, and was then carried through the muscular walls of the abdomen. In this way the cecum, whose walls were more violently inflamed than those of other parts of the intestines, was anchored close to the abdominal wound. The celiotomy opening was, for the most part left open to facilitate drainage, although a few silkworm gut stitches were inserted to be tightened as secondary sutures.

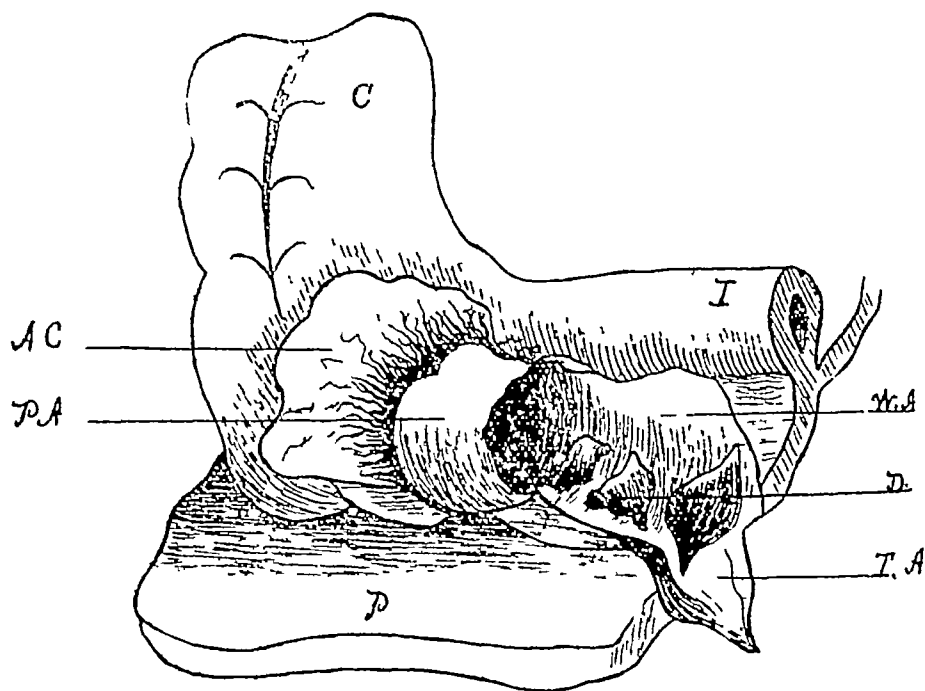
The patient bore the operation well, and despite the grave local infection made uninterrupted progress toward recovery. During the first few days an enormous serous discharge escaped from the opening, and the temperature went up to 101.2° . The pain disappeared however, and, the bowels responding to laxatives the general condition of the patient rapidly improved. The wound healed by granulation, and the man now, three months after the operation, attends to his usual business, wearing a truss to protect the abdominal walls.

The portion of the appendix removed and in the recent state is six centimeters in length and about three centimeters in diameter. Its outer surface is of a bright red color, except at points covered by a grayish red false membrane. Here and there are small masses of an amber-colored, thick, tenacious substance which finds its way out of the appendix, on pressing its walls through the cut end and through an irregular opening at the distal extremity about eight millimeters in diameter. The shape of the appendix is irregularly cylindrical but about two centimeters from the distal extremity the tube is bent upon itself from the longitudinal axis in the direction of the mesenterium at an angle of about 40° . The walls of the appendix vary in thickness from about four millimeters at the point of amputation to nine or ten millimeters near the distal extremity. There are also variations in the thickness of the walls at the same level, giving rise to slight pouchings of the lining membrane at several points. But these pockets do not at any point reach the dignity of diverticula. The interior of the appendix is filled with the same gelatinous, amber colored material already noted as having been seen adherent to the peritoneal surface of the process.

Microscopically, the fibrous coats of the appendix are greatly

thickened The muscular layers are not thicker than normal Out of thirty sections examined, only one shows a small ill-developed layer of epithelial cell representing the atrophic mucous membrane, the place of which elsewhere is filled entirely by a layer of connective tissue

This case is unique in the occurrence of rupture of the cystic appendix in the sac of a hernia, it is the third case of which I have knowledge, after a study of the accessible literature, where a cystic dilatation of the appendix occurred in a hernia, and the ninety-ninth

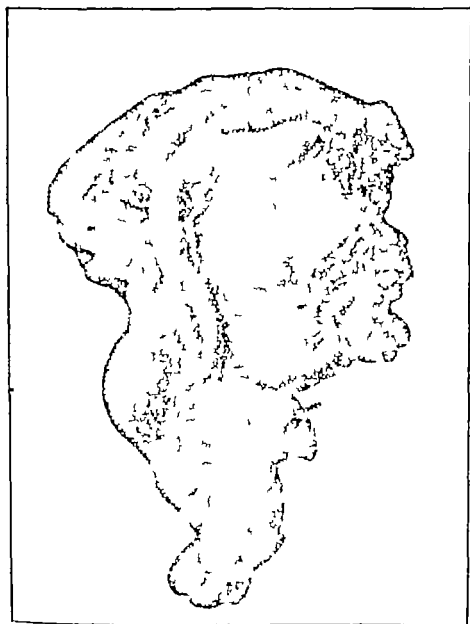


Cystic dilatation of the vermiform appendix The cystic organ has been laid open A portion of the anterior wall of the cecum has also been removed to show the proximal occluded end of the appendix bulging into it PA, Proximal end of the vermiform appendix TA, Terminal portion of the appendix WA, Walls of the cystic appendix D, Secondary diverticula AC, Cecum, a portion of its anterior wall having been removed C, Ascending colon I, Ileum P, Peritoneum

case of hernia of the appendix It is also interesting from the fact that inflammation of a hernial sac had its origin in a lesion of the appendix

Rupture of the cystic appendix by taxis in the effort to reduce an inguinal hernia is an accident which, as has been already remarked, has not before been recorded And even if such a possibility were

known, no practical advantage of the knowledge could be taken, both on account of the rarity of the circumstance and the want of diagnostic signs to lead to a proper knowledge of the conditions before operating. The practical lesson to be gained from an acquaintance with this case is that the contents of a hernia are practically unknowable before the sac is opened and that taxis is



Dr. Hektoen's specimen of cystic dilatation of the vermiform appendix

dangerous in a certain proportion of cases. But little persuasion is needed to convince surgeons to-day that the open method is, in the great majority of instances, the simplest, most radical and satisfactory treatment for strangulated and incarcerated hernias.

Cystic enlargement of the vermiform appendix seems first to have been noted by Virchow, who had observed a case in which the appendix was distended to the size of a man's fist and as the contents were a thin watery fluid he called the condition *hydrops* of the vermiform appendix.

retained Bischoff thinks that a dilatation is wanting when the mucous membrane is still able to resorb in the normal way Ribbert maintains that a dilatation is also wanting when, as a result of early and extensive destruction of the mucous membrane, no secretion into the lumen can occur

Finkelstein describes a specimen in Sonnenburg's collection in which the appendix was dilated, to a length of 14 centimeters and a circumference of 21 centimeters. The pear-shaped appendix appeared like a pedunculated tumor.

In the case reported by Wenzel-Gruber was a cyst six centimeters long, attached to the cecum by a pedicle four centimeters long. The cyst had a transverse diameter of $4\frac{1}{2}$ centimeters, and was filled with viscid mucus. This case was remarkable for the fact that the obliteration of the lumen was brought about by a chronic tubercular catarrh.

Kelynack relates a case of a middle-aged female who died from extensive vegetative endocarditis, in which the appendix was found to be completely shut off from the cecum, and no sign or indication of any previous communication could be observed. The appendix was greatly distended and presented two very distinct diverticular processes, which were directed between the folds of the mesentery of the appendix. The diverticula were connected with the dilated cavity of the appendix through well defined circular openings. The appendix contained a thick gelatinous light yellow substance, and also a small quantity of material having the appearance of curdled milk.

J. A. Berry refers to a case of Féré described as a mucocele of the appendix, and Berry himself describes a case in which (as in Shoemaker's case) the appendix was found post-mortem distended with thick gelatinous mucus.

Orth and Le⁴ have descriptions corresponding to the older accounts of Virg⁵ and sky

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Treves at the London Hospital, in which the appendix was enlarged cylindrically, its length appearing to be about $4\frac{1}{2}$ inches and its diameter one inch. What symptoms had occurred to demand an operation were not stated. The appendix was amputated after the formation of cuff-like flaps, which were united over the stump. The cyst contained a thick gelatinous mucus. Mr Treves stated that a specimen almost exactly similar to the one removed was deposited in the Cambridge Museum. Mr Treves's case is the only one operated on for symptoms arising in a cyst not involved in a hernia. A record of the symptoms produced would be of great interest.

A most interesting case is that of Maylard, who found at a post mortem upon a patient dying of Bright's disease a dilated appendix measuring four inches in length and two inches in thickness. The dilated part was filled with a clear gelatinous substance which could be turned out *en masse*. At the proximal end it communicated freely with the cecum. Perhaps we would be less surprised at the presence of so much mucus if we remember that it is not uncommon to find a viscid plug of mucus in the normal appendix. And as Maylard's case seems well authenticated we must assume that absolute obstruction is not wholly necessary to the accumulation of thick mucus. It must be otherwise when the fluid is limpid, as in Virchow's and Rokitsansky's hydropic form. As in my case the base of the appendix was ligated before being removed no attempt was made to determine the permeability of the proximal part of the process, but the occurrence of active plastic peritonitis strongly indicates the partial patency of the tube, permitting the exit of micro-organisms from the cecum. The contents of such cysts containing thick mucus cannot, therefore, be regarded as sterile without further investigations. It would seem probable that micro-organisms were absent from the cysts whose contents are limpid. In the case of the cysts whose contents are viscid and gelatinous the stiff and unyielding character of the material accounts for its failure to be expelled through the contracted opening, while the more fluid secretion of the mucus could easily escape.

The total number of cases observed is, therefore, so far as I can discover, thirty two, including the cases of Treves, Hektoen, and myself. This number indicates the rarity of the disease. Yet I cannot help thinking that the innocent character of the lesion has prevented many observers from reporting cases.

The symptoms produced by cysts of the appendix are very slight, if present at all. In my case there were tenderness and

retained Bischoff thinks that a dilatation is wanting when the mucous membrane is still able to resorb in the normal way Ribbert maintains that a dilatation is also wanting when, as a result of early and extensive destruction of the mucous membrane, no secretion into the lumen can occur

Finkelstein describes a specimen in Sonnenburg's collection in which the appendix was dilated, to a length of 14 centimeters and a circumference of 21 centimeters The pear-shaped appendix appeared like a pedunculated tumor

In the case reported by Wenzel-Gruber was a cyst six centimeters long, attached to the cecum by a pedicle four centimeters long The cyst had a transverse diameter of $4\frac{1}{2}$ centimeters, and was filled with viscid mucus This case was remarkable for the fact that the obliteration of the lumen was brought about by a chronic tubercular catarrh

Kelynack relates a case of a middle-aged female who died from extensive vegetative endocarditis, in which the appendix was found to be completely shut off from the cecum, and no sign or indication of any previous communication could be observed The appendix was greatly distended and presented two very distinct diverticular processes, which were directed between the folds of the mesentery of the appendix The diverticula were connected with the dilated cavity of the appendix through well defined circular openings The appendix contained a thick gelatinous light yellow substance, and also a small quantity of material having the appearance of curdled milk

J A Berry refers to a case of Féré described as a mucocele of the appendix, and Berry himself describes a case in which (as in Shoemaker's case) the appendix was found post-mortem distended with thick gelatinous mucus

Orth and Leube give descriptions corresponding to the older accounts of Virchow and Rokitsky

Bierhoff gives a report of three cases of this condition

Forster is cited by Wolfier as having had a case

Kelynack, in addition to his own case, refers to reports by Fenwick and Coats The latter states that the appendix had been converted into a large cyst, measuring five inches in its long diameter, the cyst contained a tenacious colored material, and the wall was thick and firm In Fenwick's case "the appendix was distended by a milky fluid, the communication with the cecum being obliterated"

In February, 1895, I witnessed an operation by Mr Frederick

Treves at the London Hospital, in which the appendix was enlarged cylindrically, its length appearing to be about $4\frac{1}{2}$ inches and its diameter one inch. What symptoms had occurred to demand an operation were not stated. The appendix was amputated after the formation of cuff like flaps, which were united over the stump. The cyst contained a thick gelatinous mucus. Mr Treves stated that a specimen almost exactly similar to the one removed was deposited in the Cambridge Museum. Mr Treves's case is the only one operated on for symptoms arising in a cyst not involved in a hernia. A record of the symptoms produced would be of great interest.

A most interesting case is that of Maylard, who found at a post mortem upon a patient dying of Bright's disease a dilated appendix measuring four inches in length and two inches in thickness. The dilated part was filled with a clear gelatinous substance which could be turned out *en masse*. At the proximal end it communicated freely with the cecum. Perhaps we would be less surprised at the presence of so much mucus if we remember that it is not uncommon to find a viscid plug of mucus in the normal appendix. And as Maylard's case seems well authenticated, we must assume that absolute obstruction is not wholly necessary to the accumulation of thick mucus. It must be otherwise when the fluid is limpid, as in Virchow's and Rokitsky's hydropic form. As in my case the base of the appendix was ligated before being removed, no attempt was made to determine the permeability of the proximal part of the process, but the occurrence of active plastic peritonitis strongly indicates the partial patency of the tube, permitting the exit of micro-organisms from the cecum. The contents of such cysts containing thick mucus cannot, therefore, be regarded as sterile without further investigations. It would seem probable that micro-organisms were absent from the cysts whose contents are limpid. In the case of the cysts whose contents are viscid and gelatinous the stiff and unyielding character of the material accounts for its failure to be expelled through the contracted opening, while the more fluid secretion of the mucus could easily escape.

The total number of cases observed is, therefore, so far as I can discover, thirty two including the cases of Treves, Hektoen, and myself. This number indicates the rarity of the disease. Yet I cannot help thinking that the innocent character of the lesion has prevented many observers from reporting cases.

The symptoms produced by cysts of the appendix are very slight if present at all. In my case there were tenderness and

sharp pain on jarring the body, for four years prior to the strangulation of the hernia. But the significance of these symptoms cannot as yet be determined.

In the absence of characteristic determinative signs the lesion cannot be diagnosticated. It will be as much as we can do, as Senn says, to bear this condition in mind when we have to deal with cysts in the region of the appendix. And my own case would cause us to bear in mind the possibility of cystic dilatation when the patient is long afflicted with vague tenderness aroused into sharp pain by concussion or pressure.

Hernia of the vermiform appendix uncomplicated by the presence of other visceral parts is an unusual occurrence. Klein, Brieger, Bajardi and others have collected cases to the number of ninety-eight, to which we may add my own.

Hernias of the vermiform appendix are internal (with which we are not at present concerned) and external. Of the latter Bajardi found fifty-seven inguinal, forty crural, and one obturator. Considering the relative infrequency of crural hernias, the proportion in this collection seems so great that special causes would seem to operate in its favor. Two circumstances, it seems to me, may be adduced in explanation. First, the small femoral opening might admit an appendix when a coil of intestine might not enter. And secondly, in inguinal hernias the greater distensibility of the rings would as a rule permit the entrance of other parts of the gastrointestinal tube.

It is not surprising, in view of the high ratio of crural hernias, to find that among 80 cases of simple appendiceal hernia in which the age was mentioned, 38 were females. The age of the patients is very interesting, in the first and successive decennia there were respectively 15, 5, 6, 5, 14, 20, 11, 3, and 1. Of these 80 cases in which the age was mentioned it will be seen that 49 occurred after the age of forty, and 35 after the age of fifty years. The explanation, I think, lies in the fact that the lapse of time favors the agencies which bring about descent of the cecum by elongating or relaxing the retrocecal connective tissue. It is to be noted, at the same time, that twenty-one cases were congenital hernias, which were all inguinal ruptures of the right side. Only four of these hernias were free, the remainder being strangulated, inflamed, complicated, or rendered irreducible by incarceration or by adhesions, as occurred in sixteen cases, fixing the appendix to the testis, the spermatic cord, or the wall of the sac. Of the recorded cases as collected by Bajardi, forty-seven were strangulated. In seventeen

of these the appendix was free of adhesions, and ten times it was so little altered that it could be reduced with facility. Eight times the appendix was gangrenous, and three times the constricting band had produced an ulceration. In one case the appendix was reduced without relieving the constriction, the patient dying five hours later.

The clinical phenomena of strangulated appendiceal hernia are very variable and have been analyzed by Bajardi for the ninety-eight cases he collected.

The symptoms of anti peristalsis were present in many cases, continuous vomiting occurring fourteen times, nausea or efforts at vomiting occurred in five cases. Constipation was absolute in sixteen cases, incomplete in five and wanting in eight.

The causes of the phenomena of incarceration are difficult to learn. In Glasmacher's case an acute flexion caused the obstruction, and actual obstruction doubtless occurs sometimes. A few cases may be explained by Klein's supposition that the obstruction is a dynamic one, due to the reflex involvement of the motor nerves of the intestinal musculature.

Brieger refers in this connection to the experiments of Kirstein, who found that ileus is not brought about by the mere sudden occlusion of the intestinal lumen, since the dogs in which intestinal occlusion was brought about by suture died after a rather long time from hunger, while the stormy symptoms which arise soon after the occurrence of incarceration develop as a result of the maltreatment of the strangulated intestine and its nerves. The violent symptoms caused by the strangulation of omental hernias are also to be borne in mind.

The mechanical conditions upon which hernias of the appendix depend are an abnormally situated cecum, an unusually long meso-cecum, or an excessively lengthy appendix. In the recorded cases the appendix is not said to have been extremely long. It would seem that usually the appendix has been able to reach the hernial canal by a post-natal slipping down process on the part of the cecum, which Hildebrand, who has studied eighty cases of hernia of the cecum, thinks is the rule in such cases. But the occurrence of twenty-one congenital hernias among Bajardi's ninety-eight would lend color to the explanation of Brieger, who states that in fetal life the vermiform process maintains a band-like connection with the testis or is immediately adherent to it, so that when the testis descends the appendix is drawn with it. The natural query is: Why does not congenital hernia of the appendix occur oftener if this is correct?

Another etiological fact suggested by Brieger is the patency of the processus vaginalis. Of course, the appendix could easily descend into it upon the occurrence of exciting causes.

Obviously the only explanation of a left-sided inguinal or femoral hernia of the appendix must lie in the abnormal situation of the caput coli, either alone or as part of a general abnormal situation of viscera. As a matter of fact, no case of situs inversus viscerum has yet been observed where the appendix was in a left-sided hernia. The necessary malposition of the cecum is not unusual.

Inflammation of a herniated appendix is prone to occur, as evidenced by Bajardi's thirty cases. The peculiar situation doubtless favors the occurrence of infection, but the presence of foreign bodies in eleven cases accounts for the phenomenon in these instances. Perforation took place in sixteen cases, nine times at the end of the appendix. The appendix was gangrenous in four instances. Diffuse peritonitis occurred seven times as a result of perforation.

The symptoms of hernial appendicitis are those of acute inflammation of greater or less violence in a hernial sac. And if strangulation is added, the symptoms of ileus still further confuse the picture. The diagnosis is very difficult in both strangulation and inflammation of herniated appendices. In forty-seven cases of strangulated hernias of the appendix, the diagnosis was, according to Bajardi, only twice made before operation. In Lobker's case Hueter made the diagnosis of probable incarcerated hernia of the appendix on account of the existence of phenomena very similar to those observed in two other cases which he had already seen. In Jackle's case Roser had admitted the possibility of hernia of the appendix on account of absence of vomiting in the presence of intense local symptoms.

Bajardi's comment that diagnosis of those conditions will be almost always impossible, would seem to be justified when we remember that the symptoms are often so violent as to simulate closely a strangulated hernia of the small intestine. In one case a diagnosis of inflamed appendicular hernia was reported by Jackle. A child which had been cured in the clinic of a suppurating inguinal hernia returned, presenting a solid cord within the scrotum. The accurate observations previously made rendered the diagnosis easier.

The mistakes made in diagnosis have been varied and sometimes very misleading. The inflamed mass has been at different times considered a peri-orchitis, an orchitis, and an inguinal adenitis, while in one instance the surgeon was in doubt as to the existence

of psoriasis or coxitis. In the case of Gibney the symptoms closely simulated those of a coxitis.

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COLOR MEASUREMENT, AND ITS APPLICATION IN MEDICINE AND THE ARTS.

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For some reason or other, chromometry continues to be one of the neglected sciences, and as result we are, even in this age of universal standards, without generally accepted color units or a nomenclature having a scientific basis. Not only in America, but in England, France, and all the other Continental countries, arbitrary names continue to be given to color shades and mixtures, without reference to their spectral or other value.

The recent advances in the art of dyeing and the discovery of so many new shades and color combinations are the direct outcome of a study of modern chemistry, and yet the technology of dyeing and dye-stuffs is not comparable in definiteness with chemical terms. Even in formal treatises on stains, paints, and pigments, one occasionally sees such absurd color designations as "oriental drab," "apple blossom," "Nile green," "ashes of roses," "French gray," etc.

The metrical system of weights and measures, the centigrade readings for the thermometer, the comparatively recent notation used in electrical measurements, and numerous other instances might be quoted as well known examples of the demand for and the supply of convenient and universal standards of measurement in various departments of the arts and sciences. Quite otherwise is it with chromatics. Even the most scientific and exact writer upon this and kindred subjects must continue, for want of something better, to employ the phraseology of the bargain counter and the penny paint-box.

There would not be so much room for criticism of this unscientific nomenclature if it were a constant one or if it were universal—i.e., if it could be translated into color names in use in other countries. Such, however, is by no means the case. It is instructive to compare the color charts to be seen in the shops of German and French dealers with those exposed for sale in the artists' material stores of America. It will be found that each nation has its own more or less local and more or less fanciful names for color combinations—the new ones especially. Not only is this true of different countries, but differences in color nomenclature are often found in the catalogues of dealers in paints and dyes, as well as in color-cards issued by sellers of artists' materials, within the *same* country. The

"terra cotta" of one paint manufacturer is not necessarily the same color mixture sold by his rivals in the same city. A comparison of the sample color-cards issued by such representative firms as Winsor & Newton in England, the Johns Manufacturing Company in this country, Paillard in France, and Schmincke in Germany, at once shows this. Hardly a color named on the card of one firm is an exact reproduction of a color sample of any other. Thus the French firm's "*Terre de Sienna brûlée*," the German "*Gebrannte Terre di Sienna*," and the English and American "burnt Sienna," all contain varying proportions of red. In the same way Schmincke's "*Elfenbeinschwarz*" is blacker than Paillard's "*noir d'ivoire*," while Winsor & Newton's 'ivory black' is pale when compared with either of these.

This is what Ludwig Fischer* says about the chemical constitution of that well known color 'Van Dyck brown' "This pigment consists for the most part of oxide of iron and aluminum silicate and is often obtained by burning yellow ochre. *The color shade depends upon the amount of heat applied*, and these variations in tint have gained for it in commerce many names, such as Prussian red, English red, Nuremberg red, Roman ochre, Italian earth, red ochre, and *ocre rouge*. The genuine Van Dyck brown, which the artist whose name it bears loved to use is said by him to have been prepared from deposits found in the neighborhood of Cassel."

The so-called "Schweinfurth green" has as many different names as variations in its yellow green color. Fischer (p. 32) says it is known in the German paint shops under at least twenty-one different designations.

At least two investigators—Captain Abney and Mr. J. W. Lovibond, of Salisbury, England—have suggested a rational color measurement as part of an attempt to resolve all colors, shades and tints into terms of certain primary colors accepted as a standard. In the case of Mr. Lovibond† many years of experiment have resulted in the perfection of an instrument called by him the 'tintometer,' by means of which any color combination can be read off in terms of *blue*, *yellow*, and *red*. The chief difficulties encountered by one who attempts to establish a standard of color are that of finding a pure white for purposes of comparison, of deciding upon an illumination which shall be fairly constant, and, lastly, of choosing the colors which are to act as standards.

Captain Abney‡ obtains his standard white by isolating a beam

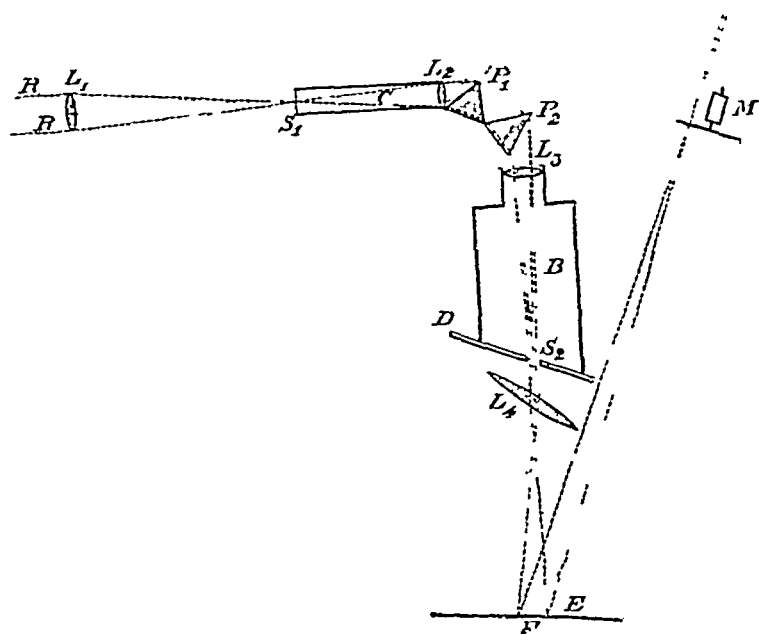
* Die Technik der Aquarell Malerei p. 28

† Measurement of Light and Colour Sensations p. 132

‡ See his Colour Vision and an earlier work on Colour Measurement and Mixture pp.

from the centre of an electric light. This beam is directed into a two- or three-prism spectroscope, and the light reflected from the surface of the first prism—considered to be half of the impinging beam—is received on a mirror which reflects it for *illuminating* the

FIG 1.



color to be matched. The other half, as a prismatic spectrum, illuminates a piece of standard white paper placed beside the colored surface. By an ingenious shutter arrangement the spectral colors are used for matching and then determining the color composition of the beam.

Abney's latest modification of his instrument is shown in Fig 1, and described on pages 18-20 of his published Tyndall Lectures

"R R are rays coming from the source of light, be it sunlight or the electric light, and an image of the one or the other is formed by the lens L_1 on the slit S_1 of the collimator C. The parallel rays produced by the lens L_2 are partially refracted and partially reflected. The former pass through the prisms P_1 , P_2 , and are focused to form a spectrum at D by the lens L_3 . D is a movable screen in which is an aperture S, the width of which can be varied as desired. The rays are again collected by a lens, L_4 , and form a white image of the surface of the last prism on the screen E. If the light passing through S_2 is alone used, the image at E is formed practically of monochromatic light. Part of the rays falling on P_1 are, as just said, reflected, but as it and the refracted part are portions of the light passing through the slit S_1 , they both must vary proportionally. If then we use the reflected portion as a comparison light to the spectrum colors, the relative intensities of the two, though they may vary intrinsically will remain the same. The rays reflected from P_1 fall on G, a silver or glass mirror, and by means of another lens, L_5 , also can be caused to form a white patch on the screen E, alongside the patch of color. At M, or anywhere in the path of the beams, an electro-motor driving a sector with apertures which can be opened or closed whilst rotating, is placed, and the illumination of either beam can be altered at will. To obtain a large spectrum on the screen E, all that is necessary is to interpose a lens of fairly short focus in front of L_4 , when a spectrum of great purity and brightness can be formed."

In the Lovibond instrument the depth of color in liquids and solids can be accurately measured in degrees, placed in their position in a permanent color scale and registered. The instrument consists (see Figs 2, 3, 4, and 5) of a graded series of standards, made of colored glasses, numbered according to their depth of color, and an instrument for holding the glasses and the object to be measured. Only three color scales are necessary for investigation work. These are red, yellow, and blue, but for some special purposes, such as for brewers, for the estimation of carbon in steel, for urinalysis, etc., scales in other colors are found convenient. Each ordinary scale consists of glass slips all of one color but differing in depth, the divisions of difference being regular, forming degrees or units as in the case of temperature degrees on a thermometer scale, or inches on a foot rule.

The color units are not only of equal depth throughout each scale, but have also a color equivalence in relation to each other that is, a given number of units in one scale has an equivalence of

color value in relation to the same number of units in the other two scales, so that upon combinations of equal units of any two or of the three a color nomenclature is founded which consists of eight fundamental terms by means of which every possible color can be first measured and then described

The instrument consists essentially of a double, parallel-sided, wooden tube, ending in an eye-piece at one end, and equal apertures for viewing the color to be measured and for the glasses used as measurers at the other end. Provision is made for the equal illumination of the color to be measured and the standard white or reflector from which the light is conveyed to the comparison tube, and also for the easy adjustment of the glasses used in the measurements. The mechanism also avoids the side lights (falling on the eyes) which often render the critical estimation of color under ordinary conditions of observation absolutely impossible. Both fields of view are evenly illuminated with indirect sunlight. When this is effected, either side can be used for the standard white without affecting the measurement.

The colored light from the object to be measured is transmitted through one tube, and the light from a standard white through the other, this standard white light is then intercepted by the graded color glasses until it corresponds in color to the object to be measured, when the numerical color value of the glasses used can be read off. I append a description of the accompanying cuts, from Lovibond's book

"A longitudinal section of the instrument is shown in Fig 2, which consists of a rectangular tube about ten inches long, divided

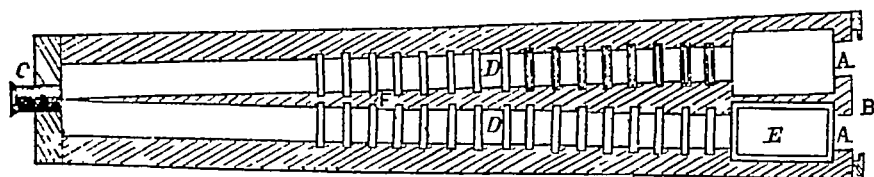


Fig II.

in the middle by a taper partition, B, terminating in a knife-edge at the eye-piece C, the aperture of which it divides into two equal parts. This cell is represented crosswise in aperture

"At the other end are two openings, A, A, which admit two equal but separate beams of light to the eye-piece in such a manner that, on looking through it, the eye commands a simultaneous distinct view of both openings. The knife-edge of the partition, being inside the range of vision, does not disturb this distinctness of view.

The grooves, D, D₁ are intended to receive the graded slips of colored glass for intercepting the beams of light transmitted through the tubes before reaching the eye

"The opening at E is intended to receive the gauged vessel containing the colored liquid to be measured

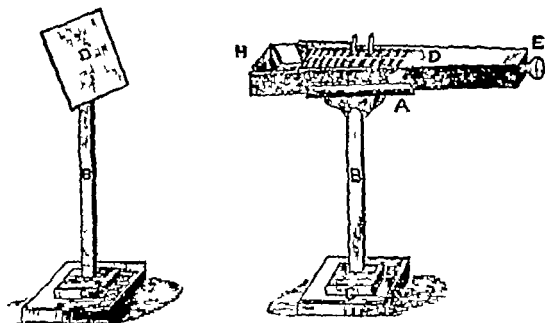


Fig 3

"Fig 3 represents the instrument as arranged for measuring color in liquids up to two inches in thickness. The optical instrument, D, slides into the upright stand at A, to receive the gauged

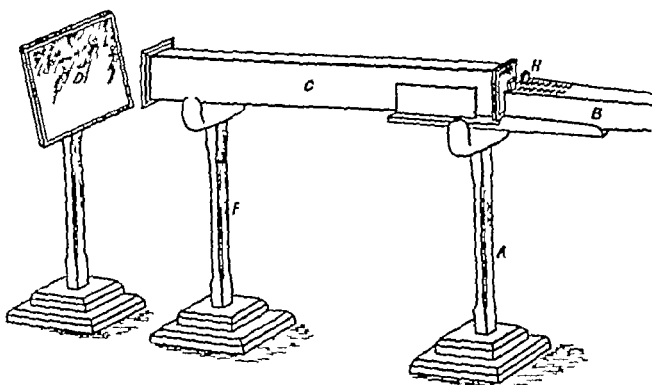


Fig 4

cells at H on either side. Light is taken from the standard white reflector, D, on stand D B C, for transmission through the tube the eye piece

"A separate stand is required for cells which are longer than two inches. The method of arrangement is shown in Fig 4, where one end of the longer cell rests on the stand A, which also carries the optical instrument B, whilst the other is supported by a separate stand, F, which can be moved to accommodate a tube of any length. The reflector, D, is used as in Fig 3.

"Fig 5 shows the arrangement for measuring color in opaque objects. The optical instrument, B, is here shown as a binocular,

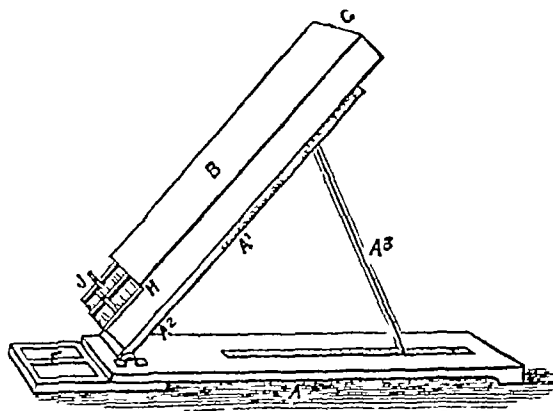


Fig 5

but the monocular described in Fig 3 fits equally well into the shoe A¹, the bottom of which is commanded by both tubes of the instrument. Under one side, at F, is placed the opaque substance to be measured, and under the other the standard white (pure precipitated lime sulphate pressed to an even surface) for reflecting the beam of white light, which is then intersected at J by the suitable standard glasses, as already described for transparent colors."

At my request the inventor of this valuable instrument has measured a number of pigment samples selected at random from the stock of a large American color and paint manufacturer. I give the results in a few cases. The paint sold under the name of "primrose" was found to contain 1.16 red units, 2.9 yellow units, and .04 of a blue unit, the so-called "salmon" color equals 1.3 units of red, 2.7 of yellow, and 1.5 of blue, "lilac" equals red 1.85, yellow 1.7, and blue 3 units, "green stone" is composed of red 1.3, yellow 2.7, and blue 1.5 units, "apple blossom" is composed of red 1.9, yellow .95, blue .8, "light blue" is composed of red .95, yellow 1.2, blue 4.9, "cream" comprises red 1.25, yellow 2.5, blue .04, "yellow stone," red 4.3, yellow 3.4, blue 1.5, "dark drab," red 6.2, yellow 7, blue 7, "extra light" drab, red 1.25, yellow 1.35, blue 2.8, "golden brown," red 7.4, yellow 7.4, blue 3.2.

I would suggest that in giving the composition of a color we write it like a chemical formula for instance, "golden brown" might be indicated as follows, $R_{.4}Y_{.7}B_{.2}$. As Lovibond* points out, many of these formulas are capable of reduction to simpler terms, but for all practical purposes it is, perhaps, as well to speak of them in terms of the primary colors accepted as standards.

The purposes for which the tintometer is now used are numerous and embrace almost every department of the arts. A few of these may be mentioned.

It has been found that the amount and kind of adulteration in most foods and commercial products, as well as the impurities commonly found in drinking water and other fluids, can be determined by the deviation, measured by the tintometer, from the normal tint of the pure article. Instead of making a laborious and complicated chemical examination of the suspected compound, its color value is determined in a few minutes. Such a chromometric examination is usually found to answer all the purposes of a quantitative analysis. In this way the tintometer is now employed in England, and to some extent elsewhere, by all sorts of commercial houses, and it is also used with great success by the health departments of cities for the ready detection of impurities and adulterations in milk, water, beer, and other foods. The slightest departure from purity, whether in food or any other product is at once shown by a measurable and corresponding variation in color.

The substitution of an exact color measurement for a chemical analysis is not new in physics. For example, the Bessemer process of converting iron into steel is almost entirely regulated by color changes observed in the furnace flame. It is exactly on this principle, except that the examination is made leisurely, that in a mixture or solution any departure from the standard, both as to kind and amount, is estimated by this instrument. When an exact color measurement has been made of a certain product (it matters not whether it be liquid or solid), the tintometer very readily shows whether a commercial sample is of equal purity.

To a limited extent chromometry has also been made use of for diagnostic purposes in medicine. In urinary analysis we have the Vogel scale of colors, where variations from the tint exhibited by normal urine are intended to indicate something of the chemical composition of that excretion.

The best example, however, of the use of a chromometer as an aid to medical diagnosis is the hemoglobinometer by which color

changes in the blood, pointing to an excess of or a diminution in certain important constituents, are measured by reference to a normal blood color taken as a standard. In Gower's instrument the blood under examination is diluted with water, drop by drop, until it corresponds in color to that of a tube of red fluid assumed to exactly correspond in shade with a one-per-cent solution of normal blood. In practice this little instrument presents several defects, which I intend, later on, to point out. A more pretentious measurer of abnormal blood, and one which conforms more closely than Gower's to those conditions that have been found necessary for exact chromometry, is that of Fleischel von Marxow, first patented in 1885. Here the blood is compared with a standard ruby glass, the shade of which is increased or diminished by a simple screw movement until it corresponds in color with the blood mixture under examination. The absence of any arrangement for cutting off the side lights appears to me to reduce the value of this instrument for chromometric purposes.

The attempt to compare the standard glass now used in the Fleischel instrument with blood samples is beset with difficulties. Lovibond's early experiments (*loc. cit.*, p. 14) showed this. "Colored glass," he says, "was next tried, and long rectangular wedges in glass of different colors, with gradually graded tapers, were ground and polished for standards, whilst corresponding tapered vessels were made for the liquids to be measured. These were arranged to work, at the end of the instrument, up and down at right-angles before two apertures, side by side, with a fixed centre line to read off the thickness of each before the aperture when a color match was made, but here also the difference of ratio between the thickness and color depth of the different colored glass and liquids proved fatal to the method."

"An incidental observation was made during these experiments concerning the difficulty of arriving at a final judgment with tapering colors, owing to one shade gradually blending into the next without a break of any kind to arrest the vision. The mental effort to arrive at a decision, under these conditions of gradual color-blending, was troublesome and vexatious in the extreme. Any person may realize this difficulty by attempting to fix a definite point by the vision in a graduated color line. I was enabled entirely to remove the difficulty by using separate glass slips for standards, the line of color decision made by each additional standard-glass slip used being a precise definition between the most minute shades."

I am myself now engaged in experimenting with a hemometer, constructed on the same lines as the tintometer, which I shall introduce to the profession shortly if I find it of any especial value

A rather curious application of the tintometer has been made in a certain Agricultural Experiment Station where the value of fertilizers under examination is determined by the change in color produced in the leaves of certain plants whose growth was used as a test

The degree of dryness, as well as the amount of yellow, in samples of white lead, can be accurately measured chromometrically, while the analysis of natural waters is after a few trials made exceedingly simple, from the fact that the amount and kind of impurities in them bear a fixed relation to their color. So it is with flour, glucose, indigo, annatto, lard, butter, chlorophyll, steel, petroleum, wine, glycerin and a hundred other articles of every day production

But quite apart from these practical applications of a color measure to medicine and in the arts, it is to be hoped that some universal chromometric standard will finally be adopted, and so there will be added another to that long list of sciences whose technology is, in the widest sense the common property of all scientific men

SOME CONSIDERATIONS WITH REGARD TO COUGH

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The aim of this paper is simply to call attention to some rather interesting peculiarities and conditions concerned in the symptom of cough, and to illustrate that this may often be found depending upon some condition remote from primary disease of the respiratory tract. It is well to bear in mind that the reflex sensibility of the air-passages is not the same throughout. Chronic congestion and mechanical irritation, as from mucus, if situated in the pharynx or about the epiglottis, will often occasion frequent and violent paroxysms of cough, deceiving both patient and practitioner into the belief in a most serious pulmonary affection.

Case 1—Mrs W——, between 25 and 30 years of age, consulted me with regard to the state of her lungs. She gave a history of chronic and obstinate cough for the previous five or six years, but with little or no expectoration. She had been treated by a number of physicians for pulmonary consumption, and had taken inhalations of some kind for many months with great improvement to her general health and weight and lessening of her cough. I found her well nourished and presenting no special indications of anemia. Careful examination of the chest disclosed a perfectly normal pair of lungs. There was absolutely nothing either in pulse or temperature to indicate a suspicion of pulmonary tuberculosis. Indeed, I was so sure that the seat of irritation was in the upper respiratory tract, that she was referred to a specialist in nose and throat diseases, who reported the discovery of a lingual tonsil. This body, by its irritation of the epiglottis, was undoubtedly the cause of her obstinate symptom, as shown by the result of treatment, for upon this being applied to the lingual tonsil her cough disappeared. Here was a case in which the patient was not only put to years of needless worry and expense, but whose cough had not the remotest connection with pulmonary disease.

Case 2—Mrs D——, aged 43, consulted me in the summer of 1886 because of a distressing dry cough. I had seen her in consultation about a year previous, when she was suffering from cardiac palpitations, I had not been able to determine organic lesion of the heart, but concluded that the palpitations were of reflex origin, as the lady was a sufferer from chronic cystitis and indigestion. Upon her consulting me for the cough, therefore, I not only carefully

examined the lungs but directed my attention also to the heart, and to my astonishment discovered well marked signs of mitral stenosis. As the lungs were healthy, the cough was attributed to chronic pulmonary congestion secondary to the valvular lesion. Treatment addressed to improvement of the circulation entirely relieved her symptoms.

Case 3 —C E——, male, aged 53, physician, was seen in consultation because of a persistent dry cough. He had passed through a pleuro pneumonia a couple of months before, and the existence of pleuritic adhesions at the left base was easily determined. In addition, however, he had a moderate dilatation of the left ventricle, probably secondary to a chronic interstitial nephritis shown by urine-analysis, as well as to moderate arterio sclerosis. It was questionable, therefore, whether the cough was due to irritation from the pleuritic adhesions or to chronic bronchial hyperemia consequent upon the cardiac asthenia. The latter was thought the more probable, and the result of treatment bore out this conclusion. With the improvement of the heart's action from infusion of digitalis, the cough entirely disappeared, as did the dyspnea.

Any one who has observed many cases of heart disease must have been struck by the fact that passive pulmonary congestion is not always associated with cough. I have records of cases of mitral disease in which stasis within the pulmonic system could not have failed to be marked, and yet cough was almost never complained of. I can only explain the striking contrast between such cases and the two narrated above as due either to individual differences in reflex excitability of the nervous system or to preponderating congestion of the large bronchi in the cases of cough, the bronchioles bearing the brunt of the stasis in those without cough. Such a hypothesis is not altogether at variance with anatomical facts. According to our present knowledge of the anatomy of the lungs, there is a two-fold connection between the bronchial and pulmonary blood vessels. There is an anastomosis between the pulmonary capillaries and those of the smaller bronchi that is, bronchioles of a diameter of less than one twenty fifth of an inch. Furthermore according to Zuckerkandl, some of the veins originating in the walls of the larger bronchi communicate with the pulmonary veins. As neither pulmonary nor bronchial veins are provided with valves, backward pressure from the former into the latter is unhindered, congestion of the bronchial mucosa results, leading to bronchial catarrh. Sensory filaments are supplied to the entire bronchial tree from the vagus through its connections with the sympathetic. It is by

means of these sensory fibres that irritation of the pulmonary tissue produces cough. Yet statements on the part of physiologists as to the sensibility of the lower portion of the bronchial system are rather indefinite, clinical observation of instances of catarrh of the small bronchi with but little, if any cough would seem to indicate, therefore, that this symptom is most troublesome when dependent upon congestion and catarrh of the larger air-tubes.

The next case illustrates the production in still another manner of cough in instances of mitral disease.

Case 4 —A D——, aged 12, was under treatment for uncompensated mitral regurgitation. Treatment had improved his condition, but he was still kept in the recumbent position on account of the cardiac feebleness. Frequent severe cough now came on, with but scanty mucous expectoration, no fever and no substernal pain. The cough was attributed to increase of the already existing bronchial congestion, but examination of the chest disclosed slight dullness and numerous fine râles in the left infra-clavicular region and extending posteriorly to below the middle of the scapula. Impaired resonance over this area, particularly in front, had been recognized upon my first assuming charge of the case, and had persisted even when there was no cough. Here, then, was a conjunction of symptoms and signs very suspicious and rather puzzling at first. Dullness and râles at the apex, together with cough, were suggestive of pulmonary tuberculosis, but the breath sounds were puerile rather than bronchial, and there was absolutely no fever. Indeed, the absence of febrile temperature excluded the idea that this was an acute inflammatory or tubercular process. Nevertheless, why were physical signs unilateral? This was the query. And the answer to this query necessitated the hypothesis of some other condition than pulmonary congestion. The process was non-inflammatory and not chronic, since only impairment of resonance had previously existed, the râles being of recent development. Obviously the solution lay in the suggestion of a mechanical cause, the one mechanical factor conceivable was pressure—pressure upon the upper lobe by the greatly distended left auricle. Had the auricle pressed upon and occasioned partial stenosis of the left main bronchus, then the physical signs should have involved the entire left lung. Acting on the hypothesis of pressure and consequent retention of bronchial secretions, the patient was ordered to assume a partially erect position. The result proved the correctness of the assumption. Cough and râles gradually disappeared, the percussion note growing more resonant *pari passu* with the improvement in the

heart and the lessening of its dilatation The patient subsequently got up and about and was free from cough, although an appreciable difference in the resonance of the two infra clavicular regions still existed

One often hears of the so-called "stomach cough," but I frankly confess to skepticism on this point prior to my experience with the following case

Case 5 —Miss B—, aged 32, was referred to me in the summer of 1892 because of troublesome and chronic cough Family history free from tuberculosis Examination of the upper respiratory passages by a specialist, and of the thoracic viscera by myself, failed to disclose any cause of the symptom complained of Upon palpation of the abdomen, however, Glenard's enteroptosis was plainly apparent Above the umbilicus the abdomen was flat and depressed, the abdominal aorta being plainly traced, involving the umbilicus and hypogastrium, the abdomen was more prominent and tympanitic, both kidneys could be plainly felt below the costal arch but could not be surrounded and grasped, although movable, extending obliquely across the epigastrium from the left upward to the right, and nearly on the level of the costal arch, was a long, hard body a little less than two fingers in breadth, which could be readily pushed upward out of reach Palpation of this body not only evinced tenderness, but to my astonishment evoked prompt and explosive cough This body was believed to be the prolapsed pancreas The patient was slightly anemic and acknowledged some fermentative indigestion and constipation No cough remedies of any kind were administered, the whole aim of treatment being to lessen symptoms referable to the digestive tract With improvement of digestion and the removal of constipation her cough ceased, and did not return during the two or three months she was under observation, although the enteroptosis remained

The explanation of cough in such cases as this is not wholly satisfactory There may be irritation of the gastric portion of the vagus or some vascular disturbance of the bronchial mucous membrane consequent upon the gastro-intestinal derangement In this case pressure upon the displaced pancreas excited such prompt cough as to suggest the probability of reflex spasm through irritation of the pneumogastric

Cough is said to follow reflex irritation of other parts outside of the thorax, such as the sexual organs, or the external auditory meatus by a foreign body, but such instances have not fallen under my personal observation

A rather extended experience with the symptomatology of thoracic disease has taught me that cough bears no definite relation to the gravity of the primary affection. I have seen so serious a disease as a large aortic aneurism pressing upon the left main bronchus and producing tracheal tugging accompanied with an insignificant amount of cough, whereas some of the most obstinate cases of cough I have ever treated have been in persons with arteriosclerosis in whom repeated examination of throat and chest failed to show changes commensurate with the symptom complained of. In some instances it has been so much relieved by a brisk purge as to suggest its dependence on venous (bronchial) congestion or a toxemia of intestinal origin.

The cough of consumptives is so variable in respect to frequency, severity, and extent of lung involved, that when particularly distressing and intractable it suggests the probability of laryngeal complication or irritation of the bronchial mucosa from tubercular ulceration or the passage over it of septic sputa. In some instances the frequency of the cough is largely a matter of habit, that is, the patient yields to his desire to cough upon slight provocation without any attempt to check it. Accordingly it is well to tell patients that they must as far as possible restrain their inclination to cough.

In conclusion I desire to bear testimony to the value of codeine salts in the management of this symptom in some cases.

Although the first principle of correct treatment is the removal of the cause where possible, there are cases in which this cannot be done, notably in heart disease and pulmonary tuberculosis. In such, if the cough be allowed to go on unchecked it may not only exhaust the patient but often aggravate the existing malady. Under such circumstances it is advisable to administer a sedative, and nothing has yielded such satisfactory results in my hands as phosphate of codeine in half-grain or grain doses by the mouth. In administering any form of sedative to quiet cough, one should remember that this means the deadening of the patient's sensibility to the presence of secretions in the air-tubes, as well as the sensibility of his respiratory centre. Therefore in case of extensive bronchitis of the small tubes the obtunding of the patient's sensibility may permit a dangerous accumulation of bronchial mucus, the bronchioles may become so much occluded as to greatly interfere with oxygenation of the blood. In feeble patients with hypostatic congestion the administration of a sedative often requires great caution and judgment. In the last stages of consumption the patients are often

robbed of sleep and exhausted by the frequency of their cough. In such cases codeine is by far the best remedy at our command, yet in its employment one should remember that the fever and other symptoms of sepsis may be intensified by the retention of the sputa.

Codeine is preferable to morphine or crude opium, because it rarely disturbs appetite or digestion and is generally free from their unpleasant after-effects. The phosphate of codeine is preferable to the sulphate, because containing a larger percentage of the base, besides being readily soluble and suitable for hyperdermic administration. In cases of *la grippe* with frequent paroxysmal cough I have employed Wyeth's hypodermic tablets of codeine phosphate, and been greatly pleased with this mode of administration. Quite recently in several cases in which dry spasmodic and prolonged cough called for a sedative and antispasmodic remedy I have obtained quite brilliant results from bromoform combined with gelsemium, as follows: Bromoform, 7.5 Gm, tincture gelsemium, 8 Gm, syrup of lactucarium, to make 65 Gm, powdered gum arabic, a sufficient quantity. A teaspoonful three or four times a day was the dose prescribed. One female patient with pulmonary tuberculosis who was unable to sleep because of harassing cough without expectoration, was instructed to take a teaspoonful of this prescription, and repeat in half an hour if necessary. The remedy did not prove very efficient, and to my horror the patient reported the next day that she had taken almost the entire quantity during the night, although apparently without injurious consequences. In another case, in which severe and almost incessant coughing due to acute bronchitis threatened to break down the heart, already greatly enfeebled from mitral and aortic disease, the following prescription accomplished the very happiest results:

R Bromoform.....	5 Gm
Codeine phosphate.....	10
Compound syrup of squill.....	10.0
Syrup of lactucarium.....	to make 130.0
Powdered gum arabic.....	q. s.

M et fiat emuls. Sig Two teaspoonfuls every two hours.

In the very early stage of an acute bronchitis with substernal soreness, squill is inadmissible and the hve syrup of this formula had better be replaced by syrup of ipecac or a minute amount of tartar emetic.

CRIMINAL RESPONSIBILITY AS RELATED TO INSANITY

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“Does there really exist a mania, in which patients who labor under it preserve their reason intact, whilst they abandon themselves to the most condemnable actions? Is there a pathological state in which man is irresistibly impelled to commit an act which his conscience condemns?” This was asked by an early and very able writer upon the subject of this paper, therefore it forms a wholesome introduction, as it will have a tendency to hold before the reader the question under discussion. That there does exist this pathological condition, is held by able specialists, but the majority of thinking men seriously question the soundness of such a doctrine.

In the discussion of this paper, man must be considered from a threefold standpoint—physical, mental, and moral, given in the order most easy of comprehension. Physically he is so constructed that all have a more or less perfect idea of what man is—certainly the dumbest mind can mark deformities, the difference in height and weight, the varied habits assumed or acquired by those in different walks in life. Dress, speech, tastes, appetites, all bespeak partially if not wholly the physical man. The unschooled can detect the mentally deformed if the defect be so great as to render the subject out of tune with the balance of those with whom he mingles. The specialist who makes the hidden recesses of man’s mind his constant study can tell much more. He can detect defects in the mind so slight that the subject may pass from the cradle to the grave and neither he nor his most intimate friends ever suspect their existence. The moral factor is almost without recognition by either scholar or specialist, and only appears when the subject has committed a crime or violated some social law. The physical factor is independent of the other two, and may exist alone, the mental, while it is dependent upon the physical for existence, is wholly independent of the moral, but the moral factor is entirely dependent upon the physical and the mental for its existence.

These three factors combined represent organic existence, which began not with birth but with the dawn of life, and has become evolved to its present complexity, dying as time passes, yet living ever, a mystery unknown and unknowable. The living ovum forms a portion of the organic structure of the mother until it

is thrown off. The same is true of the sperm of the man. When these two living bodies join in fecundation they bring a new life, with the potential forces which will cause the organism which they conjointly form to undergo a certain definite process of evolution. In the organic matter brought from the parents there is a new life and a continuity of structure which stretches indefinitely back, if you please, to the time when matter first became animate. These living atoms, the ovum and the sperm, bring with them the accumulated experiences and potential forces which they have acquired for ages past. This is heredity.

It is generally admitted by those who have studied the subject most that all of the peculiarities of both parents tend to reappear in the offspring. Admitting the truth of this, the law must hold good in the transmission of intellectual, moral, and emotional peculiarities, as it does in the transmission of physical peculiarities. The physical peculiarities, or a tendency to their development, being transmitted, the intellectual, moral and emotional peculiarities must necessarily appear, as they are, as shown before, dependent upon physical structure. Understanding this, we come face to face with a question that has tried and mocked our ablest jurists, and confounded and perplexed our most learned alienists.

The term "moral insanity" would be as difficult to describe as a ray of sunlight. The term is objected to by every alienist, yet used by all for want of a better. Pritchard defines it thus: 'By which term I distinguish the mental state of persons who betray no lesion of understanding or want of the power of reasoning, who converse correctly upon any subject whatever, and whose disease consists in a perverted state of the feelings, temper, inclinations, habits, and conduct. Such individuals are sometimes unusually excited and boisterous, at others dejected (without hallucinations) and sometimes misanthropic and morose.'

Yonder walks a congenitally diminutive, underfed, ill-nourished man, whose physical strength is scarcely enough to keep his body in an upright position, who would hold him responsible for the herculean strength of a Sandow? Or here is an imbecile, who scarcely knows enough to feed himself, who would compare him with a Webster or a Gladstone? Yet from a combination of healthy parents we sometimes get these results, and just so sure as the physical and the mental may reappear there is no other deduction possible to be attained except that the moral and emotional may also reappear. Hence if we admit physical and mental peculiarities and deficiencies we must also admit moral peculiarities and deficiencies.

and if we can have degrees of any of these factors we may have total absence, which would be in the physical, death, in the mental, idiocy, in the moral, what but moral idiocy? This is the point I wish to make, and though we are unable to see it clearly, it will, I hope, afford food for some thought upon a very much neglected subject

The term "moral insanity" is unfortunate and misleading in so far as it induces the belief that the moral feelings are themselves necessarily affected by disease while the other mental functions are sound. It is very certain, says Pritchard, that, on the contrary, what happens is oftentimes rather a weakening of the higher centres, involving paralysis of voluntary power and so permitting an excessive and irregular display of feeling in one of the lower or grosser forms it assumes

It is not my purpose to uphold the doctrine of moral insanity in too absolute and literal a sense, yet I wish to draw attention in a general way to a class of cases of derangement in which no lesion of judgment is discoverable—a class of persons whose moral nature is blunted by disease or defective at birth, and in which abnormal state there are neither physical nor mental accompaniments. You may deny moral imbecility or insanity, and show that the intelligence is not of a high order, but you must show more than this "Can you prove inability to understand elementary teachings? Can you demonstrate that there is a greater loss of memory than thousands of other people suffer from, whom no one would class as imbecile or lunatic? Are there hallucinations or delusions? If so the case does not come within the region of moral insanity. But if you cannot, and if with this state of intellect there is a hopelessly obtuse moral sense or a tendency to cruelty which can be regarded as a congenital defect and not due to the environments, the condition is one of moral insanity" (Pritchard)

Another and larger class of insane, of great interest to both the medical and the legal fraternities, consists of those who by reason of their insanity, and while laboring under disease and such duress of mind as to render them irresponsible, commit flagrant and violent acts in violation of law. These people are not by nature criminals, but on the contrary when in health are quiet, industrious, law-abiding citizens, sometimes fairly well educated, occupying good social positions. They have proper respect for the laws of society, are ever on the side of law and right, and always ready to aid in upholding good government. In their normal condition of mind they are far removed from the perpetration of crime, but through hereditary

defect or acquired mental derangement they are led to commit acts which are criminal, and for which they ought not to be held either morally or legally responsible. As the term is commonly used, they are not criminals, yet it frequently happens that these individuals are convicted and sentenced as felons. They are wrongfully held responsible for acts innocently committed by them while laboring under stress of mental disease, having been impelled by some delusion which has overpowered them, often this condition is overlooked until it more thoroughly develops in prison. From the fact that most of this class labor under some delusion of persecution, homicide or intent to commit the same becomes their prevailing crime. They are not responsible, because they are honest in their belief. They are wrong only in their deductions, which are based upon reasoning from the false premises of a diseased mind. Their individual personality becomes abnormally prominent, their thoughts dwell upon themselves constantly and selfishly. They live in a condition of introspection and brooding, continually busy with their own ideas and promptings which come to them from within and which they shrewdly and carefully conceal.

In one of the northern counties of Illinois a well-to-do farmer was arrested and tried for insanity. He was laboring under the delusion that he was the prophet Mohammed. One of his nearest neighbors was called as a witness against him, and in giving his testimony was asked if he knew of the patient's belief that he was the prophet Mohammed, and he answered that he did. "Do you believe he is?" was asked. "I do not," was the answer. "Why not?" the attorney asked him. "Because," he said, "I am that prophet myself." And from that time he told his friends that he had known for years that he was the prophet Mohammed. While this man had passed as a sane man in the same neighborhood for upwards of a quarter of a century, and none ever suspected the unsoundness of his mind, he had secretly labored under this idea, and some years after this he broke down both physically and mentally and died in an insane asylum. Supposing this man had committed a crime, how hard would it have been to have convinced a jury of his defect!

This class of insane have usually a disturbance of one or more of the special senses, the most common being some mental perversion giving rise to delusions or hallucinations of hearing, which may arise either from the psycho-sensorial centres or from some centric cerebral disorder, the aural apparatus being normal. One cannot long be connected with an asylum for the criminal insane without

being impressed with the vast number of cases of disturbance of the special senses, especially that of hearing, and the delusion of persecution. The most direct approach to inner consciousness is through the avenue of the special senses. We believe the evidence of our own senses, especially if we allow their promptings to return and become fixed. Sounds, sights and odors all affect us vividly and strangely, and when sensory impressions, the product of a diseased brain, are presented to a reasoning mind, they give rise to false and dangerous concepts. At first the improbability or falsity of these impressions is often recognized. The early impulse in many cases is to throw them off, or account for their strange presentations in some natural manner, but by their constant return they eventually become ineradicable. Patients will finally say that they recognize the voices they hear and the sights they see as having a true existence, because at first they could not believe them, and have only become convinced by their persistent reiteration. This constant recurrence of hallucinations finally fixes them, and temporizing or dwelling upon them strengthens their hold until they dominate the insane mind. It is strange to witness with how much intelligence and reason trivial circumstances are finally bent and twisted to corroborate false beliefs. These people—harassed by supernatural voices, deceived by unsubstantial shapes which appear in seemingly real forms before them, conspired against in many imaginary ways by people around them, persecuted, their lives jeopardized or daily put in danger by poison, or driven to desperation by fear of mortal injury—resist, day after day, the secret promptings to defend themselves, their lives, and all that they possess, until the provocation becomes too great and they yield to an overpowering impulse. Reasoning as they do from the premises of a diseased brain, they justify themselves and pronounce their acts defensible.

It has been my purpose, in this article, to convince those whose duty it sometimes is to defend these people, that a man may know the difference between right and wrong and yet not always be responsible for his acts. These persons are often keen in their discriminations between right and wrong, but the instinct of self-defense and self-preservation is stronger than any moral scruple. If they were sane, and these unnatural presentments of the mind were as actual and true as they believe them to be, the law would hold them guiltless of crime.

In closing I will present the history of a case I met while visiting my friend, Dr. H. E. Allison, Superintendent of the New York State Criminal Insane Asylum, at Matteawan, on the Hudson.

"A young man of good character and ability, a skilled pharmacist and drug clerk, was employed in New York City. Upon one occasion a lady made a purchase of him, and after she had left the store some one incidentally told him that she was the sister of a famous actress—which was true. This was the starting point of the delusions and hallucinations which afterward took possession of him, driving him from place to place and from city to city in the vain attempt to escape from his persecutors. At the present time he recognizes the falsity of the insane ideas which led to all his acts that followed, but he then believed in them most firmly. During all his wanderings he kept his knowledge of these imaginary persecutions to himself, successfully concealing his true mental condition from his friends and acquaintances, and suffering in silence.

"Soon after the occurrence at the drug store, he heard the voices of people on the streets talking to each other and to him, saying that he once passed this lady on the street and did not recognize her, and that she, being violently in love with him, felt mortified and hurt thereby, that this imaginary slight became known to every one so that people generally, and even her coachman, would call to him and upbraid him for the manner in which he had treated her. These voices, which he attributed even to strangers passing by, were loud and frequent and sometimes startling, and constantly worried him.

"So sensitive did he feel that he soon relinquished his position and went to Philadelphia, where he worked for less wages than in New York, in order to avoid the humiliation and disgrace occasioned by the imaginary remarks of people on the street. For a short time he was free from hallucinations there, but they soon reappeared in the old form and with the same intensity, so that he determined to hide himself, and secretly left Philadelphia and, returning to New York, there bought a ticket to Savannah by steamship, and upon reaching that point immediately took a train for New Orleans. Upon his arrival in that city he was afraid to go out of the house, and kept almost wholly within doors, usually leaving his room only at night to buy newspapers and books to read. He would occasionally take a walk along the levees by the river side, far from men and the crowded streets. During this time he made a few friends at his boarding house. Soon, however, the history of the New York affair, in some mysterious manner, became known in New Orleans, and the old hallucinations returned. He was then carrying a pistol to protect himself, as he began to fear harm as well, and to feel resentful.

“He soon made preparations to leave New Orleans secretly, and, in order to throw his enemies off the track, he asked a friend to buy a ticket for him to Cairo, up the Mississippi. He really intended to go to St. Louis, but on the way up the river he became alarmed lest his destination might become known, and stopped off at Hickman, Kentucky, there taking the train to Nashville to throw his fancied enemies off his track. He was in constant fear that ‘jobs would be put up on him,’ and new alarms were constantly added. He went to Louisville, where he spent two months at a hotel. Here, also, he left suddenly, driven by voices in his ears, but in a note to his landlord explained by some pretext his sudden departure, leaving money with which to pay his board. On this occasion he walked away from the city and went to various places near by, applying to several farmers for work but without success.

“His means were now exhausted, and a desperate resolution was formed by him to return to Louisville, to seek work in some drug store, and to defy his persecutors. He accordingly secured a new position, where he worked as a druggist from May to September. His trials, however, continually grew greater, and the voices louder and more insulting and belittling. People would shout at him suddenly behind his back, and when he turned to surprise them in the act he would find their faces impassive. He thought all these acts were connived at and abetted by the owner of the store. One day he nonplussed and astonished his employer by accusing him of so doing, but his denial was so strong that for a short time the patient’s fears were allayed and satisfied. He was not able to long endure the strain, however, and soon after again secretly left for St. Louis, and then for Alton, Illinois.

“Finally, after extended wanderings, he again determined to return to New York, and carried out his purpose of returning, arriving in the city about two years from the time his delusions first beset him, and after an absence of eighteen months. Here he obtained work, but soon fancied that his employer was inimical to him and was endeavoring to aid his enemies, the same voices followed him, and he determined to leave his place, telling his employer he did so only to escape his persecutors. He was induced to stay, his wages were increased, and his mental condition evidently and strangely not recognized, although it had been suspected at various times by a few of the people with whom he came in contact and in whom he confided. Matters progressed, however, to such a point that he suddenly left to seek employment elsewhere, after an open rupture with the proprietor, whom he accused of

slandering him and of talking behind his back. He was unsuccessful in at once securing a position, and voices told him that his old employer was shadowing him and preventing him from obtaining work and that he was also ruining his reputation in the eyes of the world, and further that he had threatened to shoot him upon sight.

' Naturally a quiet, peaceable, kind hearted and sensitive man, most inoffensive and upright in character, as his long-continued efforts to restrain himself had shown he nevertheless was aroused to desperation and sought an explanation at the store. When the proprietor appeared, which he did unexpectedly, he fired at him in sudden agitation and fear, and as he believed, in self defense, and killed him.

" This case is related, and there are numerous parallel ones, only for the purpose of showing to what extremity a man may be driven and to what extent while intelligently discharging his daily duties, he may be able to control himself in resisting impulses to do harm to others. His history is not at all singular, and it may fairly serve as a type of a large class of the insane who suffer from dangerous homicidal hallucinations and delusions. In order to determine whether a given lunatic is unsafe to be at large or not, it is necessary to know the character of his delusions and hallucinations and the nature of his thoughts and inner consciousness which are based upon them. If he has hallucinations of hearing and entertains ideas of persecution, even though he may be capable, intelligent, and possess a knowledge of right and wrong, he is dangerous at all times and likewise irresponsible. We can never know how much he is repressing, how varying his strength of will, or what harmful designs he may cherish, unless his insanity is recognized and his mental condition becomes known through a searching examination made by some person possessing the required experience and training to enable him to judge. All dangerous lunatics, however, do not commit crime often they struggle to maintain a careful self restraint, and may succeed in doing so for life, nevertheless, like a toppling wall along a crowded thoroughfare, they are a constant menace to society, and stringent measures should be adopted for their restraint '.

PHOTOGRAPHING THROUGH OPAQUE BODIES—PROFESSOR ROENTGEN'S DISCOVERY

BY HAROLD N. MOYER, M.D.

The mail brings us additional news confirmatory of the first telegraphic accounts of this remarkable discovery. While it is too early to offer an opinion as to its value in medicine, it, like other striking advances in physics, may ultimately prove of the first importance. There is yet very little that is definitely known regarding the subject, but extensive studies are now being made in all of our scientific schools, and within the next few weeks we shall be able to predict something regarding its value. As the subject is eminently interesting to medical men, the writer desires to present what is known to us at this writing (February 10). He is indebted to the *Chicago Inter-Ocean* of Sunday, February 9, for most of the points herewith presented and for the cuts.

Most of the writers so far describe the discovery as consisting essentially in the power which the cathode ray has of penetrating opaque bodies. It is manifestly a misnomer to refer to this as in any sense photography, as it is doubtful if light in the ordinary acceptation has anything to do with it. The two processes have this in common, however, both are capable of effecting changes in a sensitized plate. Professors Trowbridge and Wright and Mr. Edison all apply the term "cathode rays" to what Professor Roentgen calls "X" rays as expressing an unknown power or quantity. He thinks they are not cathode rays, but are generated by the latter at the glass wall of the discharge apparatus. He further testifies that the so-called cathode ray may be deflected by a magnet, but that the "X" rays, even with very strong magnet fields, have not, by him at least, been deflected.

Professor Trowbridge says regarding these cathode rays and their production

"The main peculiarity of the cathode rays is that, unlike the rays of ordinary electric light, they do not go in a direct line from the positive to the negative pole of the exhausted tube. It had been discovered previously that these rays would pass easily through plates of metal such as aluminum, and could be observed in the room outside the tube by means of phosphorescent substances, and photographs had been even taken under these conditions through the sheet of aluminum. The recent remarkable development of the subject is due to Roentgen, who discovered accidentally

that sensitive plates could be affected by merely placing them in a wooden box near the vessel or tube containing the cathode.

"This cathode is difficult to describe in ordinary language. It consists of a small disk or plate of aluminum, enclosed in a glass bulb from which the air has been previously exhausted. Opposite the cathode is the anode, the terminal of a wire connected with the batteries. When a powerful current is passed between the anode and the cathode and a circuit created, a light results with rays such as I have described.

"Roentgen discovered the very remarkable fact that photographs could be taken by means of these rays through wood, pasteboard, and various other substances which completely cut off the ordinary light rays, and he also succeeded in photographing through various parts of the body, especially the hand. His photographs showed the bones in the hand with unmistakable clearness and accuracy.

"Interested to discover how true the reports of Roentgen's success were, I arranged a 'Crookes tube' in such a manner that the rays from the cathode, after passing outside the Crookes tube, should fall upon a sensitive plate tightly enclosed in a wooden box. The thickness of the wood was not far from one inch—that is to say, the rays had to pass through an inch of ordinary board before they reached the sensitive film. There is no difficulty, I find, in obtaining photographs of a peculiar pattern in this manner through solid wood. The pattern was made out of strips of glass placed a few inches apart. There were, therefore, spaces free from glass, so that the rays of a portion of the pattern would have to pass through the glass, and other rays through the portions not covered by the glass. All the rays had to pass through a thickness of wood. On developing the plate it was found that a thickness of glass of about an eighth of an inch cut off the cathode rays, or, we might say, stopped them. But these rays had easily passed through the wood not protected by the glass, and through the solid wood had made their appearance on the sensitive plate. In other words a thickness of glass of an eighth of an inch was sufficient to stop the cathode rays, although it was perfectly transparent to ordinary light rays, and the cathode rays passed through the wood which is opaque to ordinary light. You will readily see the strange difference between the cathode rays and those of ordinary light, which pass with utmost ease through plates of glass but are stopped by most other substances."

He then tried to obtain a photograph of the bones of the human

hand He placed a sensitive plate in a wooden box, and brought the box near a Crookes tube, so that the rays should pass through his hand before they reached the sensitive film in the wooden box He exposed the plate to the rays for a minute and a half, and on development perceived an image of the hand with the principal lines of the bones, the knuckles, and the phalanges A clear and distinct

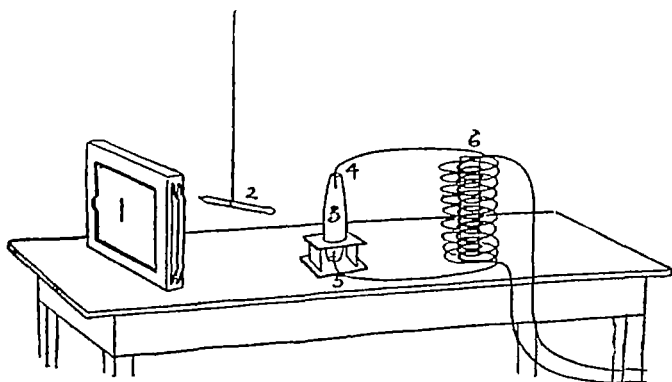


Impression made by cathode or "X" rays passing through
Professor Trowbridge's hand

representation of the bones was obtained down to the middle of the palm Careful inspection of the negative showed considerable detail, although the entire picture was somewhat of the nature of a shadow picture A longer exposure would doubtless have given more detail, but he was afraid that the Crookes tube would not stand the powerful current which he was obliged to use

Regarding the medical application of the discovery, he says "It would seem to be highly desirable to construct larger tubes,

which would be able to withstand for a long time currents sufficiently powerful to produce the intense cathode rays which would be necessary to penetrate the human body. Reports which have come from abroad in regard to photographing through the human body seem to be somewhat exaggerated, because it is stated that the rays pass through the flesh unimpeded, and are only intercepted by the bones. In my own experiments I do not find this to be entirely true. The flesh seems to absorb the rays, but to a lesser degree than the bones. It is certainly true that the cathode rays afford the only means at present of obtaining a representation of the bones through the flesh. I have, so far only succeeded in securing this representation with the human hand, but I propose before long to try to pass the rays through the entire body. To do this, as I have said, will require much longer exposure and more powerful currents.



1 Photographic plate holder with highly sensitized plate 2 Pencil to be photographed 3 Crookes tube 4 Cathode or negative pole 5 Positive pole 6 Induction coil giving very high potential discharge

Prof. A. W. Wright, of Yale, made his experiments by using a Crookes tube, the exhaustion of which was carried to such a high point that the tension of the gas left in the tube only equaled a few millionths of ordinary atmospheric pressure. This tube is connected to the poles of an induction coil in action. By discharging the negative electrode the cathode rays are obtained.

The general arrangement of his apparatus, adapted to photographing the graphite in a lead pencil, is shown in the above cut.

Professor Wright's experiments were made with a great variety of substances, and it was found that strong impressions were obtained upon a photographic plate, even when it was enclosed in an opaque wrapping of black paper and covered with a pine board half an inch thick. Among the metals aluminum is especially distinguished, and in one of the experiments made by Professor Wright an aluminum medal left its impress upon the plate so clearly as to show the design and lettering on both sides. In other experiments made by Professor Wright with a pine board interposed, a closed paper box containing aluminum grain weights left a trace upon the plate, which appeared as though the box were almost transparent and the weights themselves somewhat translucent. Another paper box contained embedded in cotton three small spheres, one of platinum, one of brass, and one of aluminum. In this case also the box and the cotton appeared so nearly transparent as to leave but a slight impression on the plate. The brass and platinum spheres intercepted a large portion of the cathodes, the aluminum sphere a much smaller proportion. A number of United States coins—silver, copper, and nickel—produced strong impressions, showing almost complete interception of the rays, but there were differences, the copper coins transmitting more than the nickel, and the nickel more than the silver.

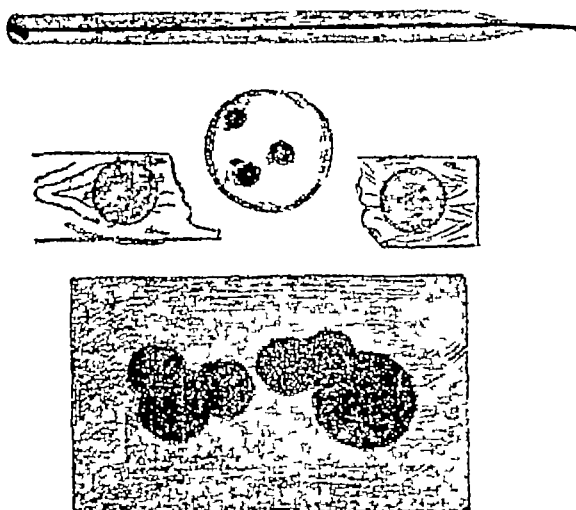
In an earlier experiment a somewhat thinner board of white wood was used, the plate being wrapped in black paper as before. On this board was laid a pocketbook of dark Russia leather, with several flaps of leather within, and containing seven cards, two of them thick. A number of coins were slipped into the inside compartment of the book, which was then closed and laid upon a board under the tube. On the plate, when developed, only a faint shading was left by the pocketbook, but of the coins there was a strong and well defined picture, showing with surprising clearness their number and position in the book.

It was remarked that the pictures produced on the sensitive plates by these experiments had to the eye an appearance similar to those of shadows thrown by the object upon a surface when the source of light is but a short distance away. If the object is at a short distance from the illuminating surface, the image is somewhat enlarged, it is also distorted if the rays fall obliquely, and the edges are somewhat blurred or diffused.

If the distance of the tube is increased or the interposed opaque layer is thinner, so that the object experimented upon is brought quite near to the sensitive plate, then the outline of the picture is

more sharp and clear and the proportions are more nearly normal. In Professor Wright's first successful experiment, instead of a photographic plate a piece of sensitive bromide paper was used, simply wrapped in stout black paper, absolutely opaque, on which the objects were laid, consisting of a pair of scissors, a lead pencil, and a quarter of a dollar. These objects left a strong impression, with remarkably clear outlines of their exact forms.

Later experiments by Professor Wright are even more interesting. A most satisfactory photograph of the bones of his hand was



taken, the hand has been the member tried by both European and American experimenters with these rays.

Professor Wright has photographed a dead rabbit through its fur, and caught upon the plate a picture of its ribs, legs, and vertebrae.

The accompanying cut illustrates some of the effects obtained: the graphite in a lead pencil, the image given by three metal balls enclosed in a pasteboard box, two dimes through an inch of wood, and a number of coins as taken through several thicknesses of leather in a sealskin pocketbook.

On this subject Edison has a word or two in the *New York*

World He is convinced that bullets, dislocated bones and calcareous deposits in the human body may be accurately shown. As to the nature of this cathode ray, he says "it is allied to electricity, light, and magnetism, in the fact that they travel through ether just as sound travels through air. All of these agents are undulatory in their movements from point to point, while the movement of the cathode ray is vibratory only. For example, take a piece of rope and fasten one end to a wall, then go off a certain distance and shake it. It will move in waves, that is the undulatory vibration. Now pull the same rope taut and it vibrates, but does not undulate."

A lecture was given in Berlin on the new discovery, and the lecturer made several striking photographs. He took a purse, put a key and some coin into it, wrapped up the whole in black paper, and laid it on a photographic plate. In order to show the great penetrating powers of the rays, he laid on the top of the wrapped-up purse a board two fingers in thickness. He then exposed the whole to the rays electrically produced in the Roentgen tubes. After about fifteen minutes, which were occupied with various very interesting demonstrations, the lecturer took out the plate, developed it, and had it thrown by limelight on to a white curtain. With the greatest clearness were seen the key and the coins, while even the outlines of the purse were scarcely visible.

Among other photographs shown was one representing the hand of a man who, years ago, ran into his hand a piece of glass, which could not be extracted but always penetrated deeper. The photograph of the skeleton of the hand produced by Professor Roentgen's method showed this bit of glass quite distinctly. Another interesting experiment was the following:

The lecturer took a box, the sides of which were held together by screws, only the heads of them, of course, being visible to the human eye, the other parts being inside the wood. In this box he placed a watch-chain, and then exposed the whole to the cathode rays. The photograph produced showed the chain, the whole length of all the screws, and not a trace of the wood. Another photograph of a hand showed clearly a broken bone in one of the fingers. Very interesting also was the reproduction of a photograph of a large metal plate. It appeared that the plate had been broken in different places, then welded together, and so smoothed over that one saw nothing of the joints. The cathode rays brought the fracture to light quite distinctly. Would not these cathode rays be useful in looking for flaws in our armor plates?

The lecturer warned his audience against premature optimism touching the practical employment of Professor Roentgen's discovery. He, nevertheless, said that hopes were justified that it would be brought to greater perfection before long.

The cathode rays were put to practical use not long ago in a European hospital, and the results obtained demonstrated that they may yet become most valuable aids in modern surgery. There were two patients on whom operations were to be performed. The photographic pictures taken showed with the greatest clearness and precision the injuries caused by a revolver shot in the left hand of a man and the position of the small projectile. In the other case, that of a girl, the position and nature of a malformation in the left foot were ascertained. The experiments were regarded as affording a means of determining the exact spot where an operation may be necessary.

BOOK REVIEWS.

MANUAL OF THE PRACTICE OF MEDICINE By George Roe Lockwood, M D
With seventy-five illustrations and twenty-two full-page colored plates
Philadelphia W B Saunders 1896

It is the aim of the author in this manual to present the essential facts and principles of the practice of medicine in a concise and available form. That he has, in a measure, fulfilled this aim, a careful examination of the work will show. In the main, he has presented the essential facts of internal medicine in a brief and readable form, and there are no serious omissions. The size of the volume, 935 pages, makes it more than a quiz compend or simple manual, which is all that is claimed for it in the title, but does not, of course, raise it to the dignity of an extended treatise. For the most part, all controversial matter is omitted, and we have a concise and readable statement of the principal facts and the more recent advances in the department of which it treats.

In classification the author has adhered closely to that employed by Osler. The work begins with the consideration of the infectious diseases, this being followed by a chapter on Diseases of the Circulatory System, then those of the Respiratory System, the Digestive Tract, Diseases of the Kidney, Constitutional Diseases, Diseases of the Blood and Lymphatic Glands, Diseases of the Nervous System, and a short chapter on Diseases of the Muscles, the work closing with an account of Animal Parasites.

The description of typhoid fever, with which the book opens, is an excellent presentation of the subject. There is nothing in this portion of the work which calls for special comment or criticism, but we cannot refrain from quoting the writer's opinion as to the method in which infection occurs in this disease. He regards it as in no sense personally contagious, the cases of typhoid being received in the general wards of the hospitals without risk. The bacilli being cast off only in the dejecta of the patient, it is from the stools that danger of infection arises. If the stools are thoroughly disinfected and the bacilli killed, there is no further risk of the spread of the infection. If the stools are not disinfected, however, the bacilli will live and thrive in them, and thus infected sewage draining into water-supplies will spread the disease among those who drink of such water. There are but three ways in which infection of typhoid need occur. The first is by direct infection from the stools, while this is infrequent, it has sometimes occurred among attendants upon the sick. The second and most usual source of infection is by contamination of the water-supply, which explains the origin of most of the epidemics. The third method is by means of milk, in which the bacilli readily thrive, and to which they are added by impure water used either to wash the cans or to dilute the milk. There are reports of epidemics apparently caused by eating meat of diseased cattle, but this is a mode of infection which is not yet definitely determined. Poor drainage, sewer gas and imperfect hygiene will not of themselves cause the disease, they only offer favorable conditions for the growth and development of the bacillus.

We have summarized the views of the author relating to infection in this disease as showing the rapid advances which have been made, and the fact that the origin of this disease seems now largely settled especially as none of the controversies of a few years back are described or even mentioned. We think it would have been wise had the writer considered the question of the contamination of the food supply as one of the possibly more important sources of infection. The recent descriptions of epidemics due to contaminated oysters ice-cream, etc., emphasize the importance of this source.

In the chapter devoted to Diphtheria we have a brief statement of the use of serum in its treatment. In view of the importance of this subject, and the fact that as yet many students are imperfectly familiar with the method, we think this description might usefully have been considerably extended, especially the description of the simple technique. Regarding its value, the author says 'It is believed that recovery should take place in all patients treated within the first twenty four hours. Taking all the cases together the mortality has been reduced one half and with improved methods and with due appreciation of the value of early diagnosis and early treatment, the mortality will still further be reduced.'

Hydrophobia is described as 'An acute specific disease of animals that is communicated to man by inoculation. Its synonym is rabies.' In this we think the author errs in not using the term rabies to signify the disease which develops in animals, and hydrophobia as designating the disorder when it occurs in man. The author describes the preventive inoculations as initiated by Pasteur and distinctly affirms their value claiming that with them the occurrence of the disease is in nearly all cases prevented and that the mortality of those bitten by rabid animals and treated in this manner has been reduced to 0.6 per cent.

In a description of acute endocarditis the author shows by diagram the normal condition of the circulation compensatory hypertrophy of the left ventricle, failure and dilatation of the left ventricle, and total failure of compensation. This method exhibits at a glance the mechanism by which these complicated conditions are produced and much more clearly than would be the case if they were described in several pages of text. They should be a material help to the student in understanding these important and somewhat difficult conditions.

Under Neuroses of the Heart intermittent action tachycardia and brachycardia are described but we do not think the author clearly distinguishes between false and true intermittence nor does he point out the comparative unimportance of the former and the seriousness of the latter condition excepting inferentially when he says 'A constant intermittent action of the heart is common to many old people and is of no serious consequence.' He further says that 'Intermittency often occurs with fatty degeneration of the heart and is to be distinguished from reflex intermittency by getting the patient to exercise briskly. By such exercise the really weak heart goes to pieces, while the healthy but neurotic heart clears up.' We cannot but think that when the really weak heart goes to pieces it may furnish valuable data to the physician but prove of doubtful utility to the patient.

Appendicitis is adequately considered, and is divided into acute catarrhal acute suppurative and gangrenous appendicitis. These various forms are illustrated by diagrams which serve admirably to illustrate the varying pathological

conditions underlying them. In the matter of treatment, we think the author expresses the opinion of most practitioners when he says that "No disease requires more judgment for its proper treatment, and no routine plan of treatment is applicable to all patients. In every case a surgeon should be called into consultation, as the disease is, properly speaking, a surgical one, the treatment being both medical and surgical." We think he settles that *quæstio revivata* of chronic appendicitis when he says that "the treatment is surgical, whether to operate during an interim, or to wait until the symptoms of an acute attack call for surgical interference, should be left to the surgeon to decide upon the merits of each individual case."

Under Cancer of the Rectum the author gives six diagrams illustrating the more important forms in which this disease occurs, which ought to prove a valuable guide to the beginner in the early diagnosis of this affection.

The section on Diseases of the Nervous System is the weakest portion of the book, and we think if fifty additional pages had been devoted to this department it would have improved the symmetry of the volume. On reading this portion, however, we are surprised that the author has compressed so much within this limited space. Of necessity, however, many of the descriptions of diseases are little more than mere definitions. This is not true of some of the more important sections, such as that on Tumors and Syphilis of the Brain, Acute Anterior Poliomyelitis, Locomotor Ataxia, Peripheral Neuritis, and Epilepsy.

The work is written in terse but not elegant English. The descriptions are, for the most part, clear, and the work as a whole is free from signs of hasty compilation. It is finely printed, beautifully illustrated, and is withal a type of the publisher's art. In this connection we desire to refer to the improved appearance with which the recent works of W. B. Saunders have been issued. The work forms an acceptable addition to the recent literature on practical medicine. In a book of such general excellence it is perhaps invidious to say that there are a few typographical errors. We note on page 181 that "clay-covered" stools are described, and on page 261 we read, "the destructive features are violent pulsations of an unpleasant nature." We fancy that distinctive instead of destructive is here intended.

A HANDBOOK OF MEDICAL DIAGNOSIS FOR STUDENTS. By James B. Herrick, A. B., M. D. With eighty illustrations and two colored plates. Philadelphia: Lea Brothers & Co. 1895.

Under the title of this work we are informed that it is intended for students, a statement that is repeated in the preface. If by students is meant undergraduates, we would certainly disagree with the author, not that the book fails in any way to be useful to those beginning the study of medicine, but we feel that an examination of its contents will show that it is of sufficient merit to be a guide and a help to the most advanced practitioner. While the work is of small compass, yet the condensation of style and directness of statement result in a much more comprehensive presentation of its topics than we should expect, and in a way that at once raises a book beyond the standard of a mere quiz compend or student's help.

We quote the first few paragraphs of the author's introduction, which seem to us at this time to be especially worthy of emphasis. "The most important question the physician is called upon to answer when he is at the bedside

of his patient is not What is the cause of the disease or its proper treatment? but, What *is* the disease? What *is* the matter? The mastery of the diagnosis is half the battle. Treatment follows naturally when the ailment is known and especially if the causal factor can be removed. Now just as treatment is either rational or empirical so diagnosis may in a sense be rational or empirical—rational where the physician in diagnosing typhoid fever or pneumonia has a clear conception of the causative agents of the disease the pathological processes thereby excited and the morbid changes wrought in various organs of the body with consequent alteration of function empirical where without any deep insight into the changes produced, he recognizes by certain clinical features the likeness of the case to the common case of his text book, and so names his disease and prescribes according to name and not the actual condition of the patient before him. The ability to make an accurate and at the same time rapid diagnosis is in a measure a gift but in much larger degree the result of careful training and experience. Students are prone to look upon the diagnoses of their preceptors or clinical instructors as made by intuition but the accurate diagnosis is made as the result of observation and reasoning through a trained eye and mind though a trained eye and mind may reach the result quickly by passing readily over the ground which the beginner treads with hesitating caution. As the pianist by daily practice of scales and studies learns to play at sight music that in his early years would have required hours of patient study for its correct performance so the diagnostician by going repeatedly over the same ground learns to read the case at sight. But it is not intuition, it is the result of careful training. The eye that at first analyzed the scarlatinal rash mentally and in detail and made careful inquiry into the history of the case mode of onset exposure to the disease the coexistence of sore throat, high fever, etc. now at a glance recognizes the eruption. With the finger on the rapid pulse he detects the heat of the skin and makes a so-called intuitive diagnosis. Yet there is a process of reasoning here unconscious though the reasoner himself may be of it. But practice has enabled the physician to reach his conclusions by rapid strides instead of by a slow and painstaking process. There is no such thing as an intuitive diagnosis.

Under the head of Diagnosis the author says. Where possible a diagnosis should be made positively yet an honest confession of ignorance is often the best as it is the only honorable policy. Intelligent people are willing to wait until a physician has had time to observe the patient and until he can arrive at a positive conclusion. It is only the ignorant who expect a diagnosis to be made at first sight in every instance. People are beginning to learn that it is necessary in some cases to examine carefully all the organs of the body together with the secretions and excretions. They are willing to wait, therefore until a urinalysis has been made until perhaps the sputum has been examined or until the suspicious deposit in the throat has been subjected to bacteriological examination. More credit often comes to the physician who makes a correct diagnosis and from that a correct prognosis than to the physician who cures all cases.

The work is most symmetrically arranged and what is perhaps better the subjects are most symmetrically treated. It is divided into Infectious Diseases Diseases of the Digestive System Respiratory System and Circulatory System Constitutional Diseases, Diseases of the Kidneys and Genito Urinary Organs and Diseases of the Nervous System the latter presenting three sub

divisions into those of the spinal cord and its coverings, the brain and its coverings, and the functional nervous affections

Where all is uniformly excellent, it would be invidious to single out certain portions of the work for special comment, but we are especially impressed with the value of the section dealing with infectious diseases, malaria, and the examination of the blood. If we were to take exceptions to some of the specific statements of the writer, we would be inclined to disagree with him in the statement that peripheral neuritis after typhoid fever is not rarely met with. That may possibly have been his experience, but we believe that this is a decidedly exceptional complication.

The chapter on Malaria is an excellent presentation of the subject, and contains the most condensed account with which we are acquainted of the changes undergone by the malarial parasite, and of the knowledge which is to be obtained by staining the blood in these diseases. Figs 13 and 14, and the colored plate illustrating the changes which take place within the blood-corpuscles, are exceedingly well done.

That portion of the work dealing with disorders of the stomach shows that the writer has thoroughly mastered this field of diagnosis. We regret that the description of the method of determining the position and size of the stomach is not more extended, and that the author had not more space at his disposal in describing the chemical examination of the stomach contents.

In the section dealing with the diseases of the nervous system the author has succeeded in presenting in a very compact form the most essential thing for the beginner in medicine and the general practitioner to know regarding this important group of disorders. We note that Gowers has been largely influential in determining the author's views in classification and many other particulars. Such being the case, we were somewhat surprised that the author did not eliminate the term "reflex" in describing the knee-jerk, though he gives the term used by Westphal, "knee phenomenon," and in so far recognizes that these tendon jerks are not reflexes at all—a contention long insisted upon by Gowers. We regard the term "knee-jerk" as much the best that has been proposed for describing this phenomenon.

The work is beautifully printed, is free from typographical errors, and is written in pure, forcible English.

In closing our review of this work we feel like expressing the hope that a second edition may soon be called for, and that then the author may considerably extend the scope of the volume.

PRINCIPLES OF SURGERY. By N. Senn, M.D., Ph.D., LL.D. Second edition. Thoroughly revised. Illustrated with 178 wood engravings and five colored plates. Royal octavo, pp. 656. Philadelphia: The F. A. Davis Co.

The new edition of Professor Senn's work on the principles of surgery will be gladly welcomed by the student and by the thoughtful and progressive practitioner. The first edition found a receptive public, since it gave to English-speaking medical men a diligently compiled account of the then comparatively new doctrines of the infectious wound diseases and their treatment. The present edition will sustain the reputation acquired by the preceding one, by virtue of the numerous important changes which have been made in the text and in the illustrations.

Among these additions to the book is an account of Dr Senn's method of retaining in apposition the fragments of fractured bones which the surgeon deems it necessary to fix by mechanical means. This method it will be remembered, consists in enclosing the ends of the bone in a hollow cylinder of ox bone just large enough to surround and include the bone operated upon.

This and many other additions of a therapeutic nature give the work more the character of a book on general surgery than the old edition possessed.

To the same purport we may refer to the introduction of diagrams illustrative of neuroplasty from the works of Létiévant and Tillmanns giving the reader a very much more practical knowledge of this important subject which is often needed in dealing with emergency cases of nerve injury than can be conveyed by text alone.

Recent improvements in the methods of removing sequestra from the long bones, and of dealing plastically with the soft parts for the purpose of closing the defect are given the attention which their practical importance demands.

Minor changes too numerous to mention are noted in the text, all tending to improve the theoretical character of the book as well as to make it more practical.

OVER THE HOOKAH, OR THE TALKS OF A TALKATIVE DOCTOR. By G. Frank Lydston M.D.

This is an example of the lighter vein in medical literature—if indeed it can be called medical literature at all. It is rather the excursion of a medical man in the domain of letters. Of these there have been an increasing number of late. To say nothing of the more ambitious attempts by members of the profession in this country there have been the minor effusions of the 'Country Doctor,' 'The Physician Himself,' and 'The Doctor's Wife.'

As the title indicates, Dr Lydston has produced a book for the leisure hours of the physician and all other tired brain workers who appreciate a well told tale or a jingling rhyme. While the main purpose of the book is to amuse it contains many instances where philosophical truth comes near the surface. The Doctor's wide reputation as a story teller and his admitted literary bias cannot but secure a favorable reception of his book, from both the lay and medical public.

The book is not yet published but we have been favored with advance sheets of some chapters. If the whole work bears out the impression made by the portion which we have seen the author will achieve signal distinction in the domain of humorous medical literature.

The book purports to be a series of conversations between one Dr William Weymouth and a certain student of medicine. An idea of the contents will be gained by a glance at the chapter headings some of which are 'How the Doctor Emulated Sandow,' 'Old Abe as a Musical Critic,' 'The Rhodomontades of a Sociable Skull,' 'A Martyr to his Passions,' 'Seeing Things,' 'Larry's Contribution to the Psychology of Fish and the Conversion of Finn the Irish Giant,' 'The Passing of Major Merriwether,' 'An Impromptu Symposium,' 'My Cæsus,' 'A Tale of a Generous Patient.'

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As the title indicates, Dr Lydston has produced a book for the leisure hours of the physician and all other tired brain workers who appreciate a well told tale or a jingling rhyme. While the main purpose of the book is to amuse it contains many instances where philosophical truth comes near the surface. The Doctor's wide reputation as a story teller, and his admitted literary bias cannot but secure a favorable reception of his book from both the lay and medical public.

The book is not yet published, but we have been favored with advance sheets of some chapters. If the whole work bears out the impression made by the portion which we have seen, the author will achieve signal distinction in the domain of humorous medical literature.

The book purports to be a series of conversations between one Dr William Weymouth and a certain student of medicine. An idea of the contents will be gained by a glance at the chapter headings, some of which are: 'How the Doctor Emulated Sandow,' 'Old Abe as a Musical Critic,' 'The Rhodomontades of a Sociable Skull,' 'A Martyr to his Passions,' 'Seeing Things,' 'Larry's Contribution to the Psychology of Fish and the Conversion of Finn the Irish Giant,' 'The Passing of Major Merrivether,' 'An Impromptu Symposium,' 'My Cræsus,' 'A Tale of a Generous Patient.'

PROGRESS OF MEDICAL SCIENCE.

MEDICINE

UNDER THE CHARGE OF JAMES B. HERRICK, A. B., M. D.,

Adjunct Professor of Medicine, Rush Medical College, Attending Physician to the Cook County Hospital, Chicago

Malignant Endocarditis and Gonorrhea —

Not a few observers have recognized a connection between gonorrhea and disturbances in the circulatory organs, chiefly in the shape of endo-, myo- or peri-carditis. Dauber and Borst report the clinical and post-mortem findings in a case of malignant endocarditis following gonorrhea (*Deutsches Archiv für Klin. Med.*, bd 56, s 230)

A previously healthy, strong young man, shortly after an acquired gonorrhea came under observation with inguinal lymphadenitis, para-urethral abscess, inflamed spermatic cord, and tendovaginitis in the left hand. From the thick, yellow urethral discharge, cocci believed to be gonococci were found in stained specimens, though no cultures were made—a fact that the authors, in the light of later developments, deeply regret.

The evidences of local trouble abated, the swelling of the sheaths of the tendons disappeared, but there developed the signs and symptoms of a malignant endocarditis affecting chiefly the aortic valves and producing an insufficiency with characteristic physical signs—diastolic murmur, *pulsus alter et celer*, the peculiar tones over the peripheral vessels, left ventricular hypertrophy. The course of the temperature, the septic nephritis, the splenic tumor, all present before the fatal pleuro-pneumonia developed, completed the picture of malignant endocarditis.

The anatomical diagnosis was as follows. Malignant endocarditis (ulcerative and vegetative) of the aortic valves, abscess of myocardium, hypertrophy of the entire heart, chiefly of the left ventricle, dilatation of the left ventricle, degeneration of the heart, double croupous pneumonia, acute nephritis, anemic renal infarct, swelling of spleen and liver.

Careful bacteriological examination of the affected areas and of the heart's blood revealed, in stained specimens from the heart and valves, a coccus morphologically like the gonococcus of Neisser. This organism also was readily decolorized by Gram's and Weigert's

stains In the renal infarcts, in the spleen, or in the pneumonic area, these cocci were not demonstrable Cover slip preparations from the blood of the heart and of the spleen revealed them Culture experiments were negative, except in one blood serum agar medium here, after thirty six hours colonies developed that differed so from those of the Neisser coccus that the conclusion was reached that the coccus found in the heart's valve and in the myocardial abscess, while morphologically like the gonococcus, in reality was a different organism

The authors therefore while believing that the gonorrhea was the starting point of the endocardial affection, and while not denying the possibility that the true gonococcus is able to excite an ulcerative process on the endocardium, still maintain that unless culture experiments result positively in proving the presence of the Neisser organism, one must hesitate to pronounce upon the gonococcal origin of the valvular affection, even though cocci, morphologically and in their reaction to stains, identical with the gonococcus are found They quote the cases previously reported, and also the views of various authors, among them Souplet, who suggested the origin of the endocarditis in one of four ways (1) the direct influence of the gonococcus (2) the influence of a toxin, (3) secondary infection with pus microbes, (4) mixed infection

A Method of Diagnosing Diabetes by an Examination of the Blood —

Bremer (*Medical Review* Dec 6, 1895) claims that this can be done by the following simple procedure A drop of blood obtained by puncture is spread upon a cover glass, which, after drying is placed in a mixture of one part alcohol to two parts ether, which is then boiled for a few minutes (A cold mixture may be used also leaving the cover glass immersed for an hour) The preparation is now ready to be stained, which is accomplished with a solution of one grain of a certain anilin dye in three drachms of a mixture of two parts water and one part alcohol This staining fluid is allowed to act upon the specimen for three or four minutes The anilin dye consists of a chemical union (not a mechanical mixture) of anilin products which Dr Bremer intends to call Glycothallin

The result of the color reaction is a sap-green in cases of diabetes, while the blood film derived from non-diabetic individuals appears in a violet red color The microscope is not required in the examination The green appearance of the blood film upon the cover glass is due to a color reaction which takes place in the red corpuscles and not in the plasma of the blood as may be shown by

a microscopic examination in which the erythrocytes appear of a green color

Dr Bremer claims that this new method for diagnosing diabetes is particularly valuable in those cases in which there is a temporary absence of sugar in the urine, as may occur upon a very rigid system of dieting or upon the use of certain drugs, such as calomel or antipyrin. It is also valuable in cases which appear to be upon the "diabetic border line," in which sugar may not be detected in the urine—the test being, as stated, one of great precision and delicacy.

Aortic Regurgitation with Rupture of Valve —

An interesting case of aortic regurgitation with rupture of a valve is described by Vickery (*Boston Medical and Surgical Journal*, Dec 5, 1895)

The patient, a man 40 years of age, had suffered from rheumatism five years before coming under observation, but had apparently experienced no evil consequence beyond the three weeks' illness. Four months before coming under Dr Vickery's care he went to bed feeling fairly well, though for about a week he had felt languid and drowsy. A friend who woke him in the morning insisted that a peculiar noise could be heard inside him, as though a blood-vessel had given way; this sound could be heard at a distance of eight feet. From that time the patient complained of dyspnea.

The clinical examination revealed a loud diastolic murmur over the base of the heart, easily heard two inches from the chest, and also readily audible over the greater part of the body, particularly the bony skeleton and the muscles. There was marked left ventricular hypertrophy. The capillary pulse, the peripheral tones, and the water-hammer pulse, gave confirmatory evidence of aortic regurgitation.

Vickery concludes that a valve already diseased had suddenly ruptured.

Cause of Death in Croupous Pneumonia —

The causes of death in lobar pneumonia are discussed by Bollinger, in an article in the *Münchener Medicinische Wochenschrift*, 1895, xli, p 745.

He admits that death may, in exceptional cases, be due to the great interference with the pulmonary function, *i e* to the great extent of lung tissue involved, it may be due to the severity of the infection—the toxemia, it may be due to complications, as meningitis, pericarditis, gangrene of the lungs, empyema, etc.

The chief cause, however, of the collapse and of the fatal cardiac weakness is the great drain made upon the blood by the inflammatory exudate that, developing rapidly, produces an effect not unlike an acute internal hemorrhage. Thus oligemia leads to insufficient nourishment of all organs and tissues. The heart—already severely taxed by the high temperature, the intoxication, and excessive work—becomes muscularly insufficient, and dilatation and collapse may be the consequence.

SURGERY

UNDER THE CHARGE OF WELLES VAN HOOK, A.B. M.D.

Professor of Surgery in the Chicago Polyclinic

Nasal Cocainization —

In the *Annals of Surgery* for January, 1896, Dr. Arpad G. Gerster, in association with Drs. Mayer and Theobald, reports on the value of cocainization of the nasal mucous membrane before and during surgical anesthesia, with a record of 100 cases. It will be remembered that some time since we made reference to this method of facilitating general anesthesia, which was originated by Rosenberg, who states that the following advantages are to be accredited to the method:

1. As the patient's perception of the odor of the anesthetic is much diminished, the feeling of suffocation is entirely absent.
2. The stage of excitement is either short or entirely absent.
3. Vomiting during narcosis is rarer than usual.
4. Sickness following anesthesia does not occur.

Dr. Gerster concludes his article with the expression of the following views:

"As a result of the observations made in the 100 cases of anesthesia serving as a basis for this study, we have found that the cocainization of the nasal mucous membrane preceding and during surgical anesthesia considerably diminishes the distress and oppression felt by the patient at the beginning. The observation was made that, at the beginning of narcosis the patients manifested less reflex irritation than usual, that they became insensible more rapidly and quietly, with less struggling, coughing, and nausea; that, especially when ether was used, the mask could be approached to the face of the patient much quicker without opposition or resistance. In conformity with this, the later stages of anesthesia were also more quiet and more free from disturbing interruptions than usual. But here again habitual alcoholists formed an exception.

"On the other hand, perhaps ten times, and in about twenty to twenty-five minutes after the first application of cocaine, with no external reason—such as, for instance, profuse hemorrhage—a marked acceleration of the pulse-rate, with facial pallor, was observed, followed by profuse sweating, probably the effect of cocaine. It seemed to us also that cocaine anesthesia of the mucous membrane tended to diminish the depth of the respiration.

"As to the after-effects, we have derived the impression that in the cases observed there have been less nausea, vomiting, headache, and general malaise than is the rule in ordinary anesthesia. It must be said, however, that in a few instances patients who did not vomit at all during the first twenty-four or forty-eight hours vomited a great deal on the second and third day without any recognizable cause.

"As to the anesthesia of alcoholics, where there is much need of improvement, Rosenberg's method does not afford any marked advantage over the older methods.

"On the whole it is safe to conclude that, in view of the ease and simplicity of the procedure, the absence of apparent risk, and the undeniable diminution of trying subjective effects, its extended and systematic trial deserves encouragement."

Peritoneal Adhesions after Laparotomy —

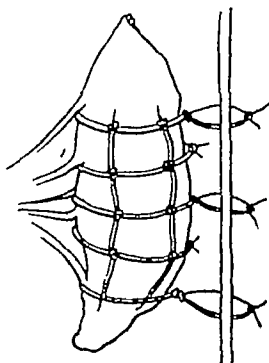
Dr. Fred Byron Robinson (*American Journal of Obstetrics*, January, 1896), in discussing the above subject from a somewhat extended experience in experimental operations on animals, and from a study of autopsies and cases subjected to a second laparotomy, arrives at the following conclusions: "Operations for peritoneal adhesions are seldom required when the adhesions surround solid or fixed organs. The peritonitic adhesions in the pelvis which demand operation are those involving the loops of small intestines, sigmoid, bladder, or Fallopian tubes. The peristaltic motion of the adherent loops of small intestines, the sigmoid, the Fallopian tubes, and the bladder, is what produces pain. The pain is a dull, dragging pain, exacerbated by motion, defecation, and urination if the bladder is adherent. The stumps of the Fallopian tubes are the most frequent points of adhesion, this is due to the mucous membrane of the tube being left exposed to the peritoneal cavity, and no doubt recurrent flows of infection trickle out at the end of the tube and keep up recurrent attacks after the adhesions are formed. The ligature should not be put around the tube, but simply around the ovarian artery. No doubt catharsis at the end of the second day

produces sufficient peristalsis to free many coils of intestine from the bed of soft exudate. It does not appear that drainage increases the peritoneal adhesions. The great prophylaxis in these cases is to cut off the open connection between the uterus and the pelvic peritoneum by burying in some way the stump of the Fallopian tube."

Treatment of Wandering Spleen —

Dr Salkoff (*Archiv für Klinische Chirurgie*, vol 51, heft 3) has studied the treatment of wandering spleen by means of splenopexy. He formulates the following propositions:

- 1 With the aid of catgut sutures the spleen can be made quite fast and securely fixed to the abdominal wall.
- 2 With this fixation it is sufficient to suture the edges or the middle portion of the spleen.
- 3 The spleen becomes reduced in size as the result of the newly formed tissue beds.
- 4 The sutured spleen continues its functions.
- 5 The chief rôle in the fixation of the spleen is played by the threads of catgut, by the side of which scar tissue bundles form.
- 6 Every kind of irritation and production of necrosis of the surface of the spleen for the purpose of calling forth stronger adhe-



Bauchwand

sions is out of place, because, in the first place, superfluous adhesions with curved parts, such as the intestines, etc., may arise, in the second place, because in the case of imperfect asepsis the catgut is more likely to call forth a suppuration than normal tissue.

With reference to the physiological functions of the spleen, his conclusions are as follows

1 Extirpation of the spleen under otherwise favorable circumstances is only possible in the presence of an entirely normal condition of other hematopoietic organs

2 Instead of splenectomy in local diseases of the spleen, resection of the spleen is to be undertaken, which is possible under the application of steam for hemostasis

3 The operation of splenectomy is indicated when the pathologically altered spleen represents, not the secondary but the primary disease, which can spread to the organism at large, and finally, in the cases where we cannot hope that the pathologically altered spleen, although very small, is able to fulfill its physiological requirements

4 The wandering spleen must and can be fixed

5 A spleen fixed by means of a catgut net functionates

6 A spleen fixed with sutures diminishes in circumference, which is an advantage in case of hypertrophy

7 In prolapsed spleen an attempt may be made to replace it and fix it

PATHOLOGY

UNDER THE CHARGE OF LUDVIG HEKTOEN M D,

Pathologist to Cook County Hospital Chicago,

AND

E. R. LE COUT M D,

Demonstrator of Anatomy and Pathology Rush Medical College, Chicago

Malignant Leiomyoma and Myoma Sarcomatodes —

Morpurgo (*Ztschr für Heilkunde*, 1895, bd xvi, heft 2 and 3) describes two tumors that were obtained from the body of a woman aged 54 years. The first consisted of several nodules implanted in the uterine wall, the second, a tumor from the small intestine. Study of the uterine growth showed that the tumor tissue proper consisted of a fibrillar ground substance, in which spindle cells and muscle fibres were imbedded. Some of the spindle cells contained rod-shaped nuclei and closely resembled unstriated muscle fibres, others were shorter and provided with oval nuclei, and bore no resemblance to muscle cells. Multinucleated giant-cells were also found. Abundant mitotic figures were present, both in cells belonging to the muscular tissue and in the spindle cells, as well as in the cells of the supporting matrix. Despite the apparently active karyokinetic processes, the growth did not attain the characters of

an adult tissue, either of the muscular or the connective-tissue type. The newly formed cells showed a tendency to remain in the embryonal state and in places gave to the tumor the appearance of a spindle cell sarcoma. It differed from this, however, in the presence of smooth muscle cells and of transitional forms between these and sarcoma cells. The author would apply to this tumor the term *myoma sarcomatodes*, which was given to a similar neoplasm by Williams.

The growth from the intestine consisted of a fibrillar and granular matrix and of large cells undergoing karyokinetic changes. The cell protoplasm contained small lumpy masses, showing a marked affinity for protoplasmic stains, they differed from the so-called parasites hitherto described as occurring in sarcoma, and are believed to be degenerative products. The tumor seemed to originate in the muscular coat of the bowel the cells of which were transformed into tumor cells, mitosis at the same time contributing to the increase in the number of elements. In the centre of the tumors the cells were very irregular, giant cells were also seen. The growth had a distinct tendency to invade both the serous membrane and the mucosa. The author believes that the neoplasm was not originally a myoma, but that it was formed by an atypical hyperplasia of the pre-existing normal muscle fibres, and suggests the name *leiomyoma malignum*.

The Acute Degeneration of the Liver Produced by Streptococcus Infection —

V. Babes (*Virchow's Archiv* bd cxxvii, s. 1) describes four cases of a peculiar hemorrhagic form of acute streptococcus septicaemia. The first three cases were foudroyant and exhibited necrosis of the entire liver, the capillaries of which were filled with a short streptococcus. The streptococcus was found to be distinctly pathogenic for animals. The micro-organisms were also secured from the lung, spleen, kidney, and tonsils in almost pure culture. The fourth case showed an almost perfect clinical picture of *acute yellow atrophy of the liver*. In the tissues, besides the streptococcus the staphylococcus aureus, a lancet shaped organism in the lungs and an immense number of short streptococci were distributed throughout the organism. The streptococcus could not be cultivated from the degenerated liver, but was abundant in the vena cava.

The explanation of their absence from the liver seems to be that they first exert their activities upon this organ and die and disappear from it as the parenchyma degenerates. The disappear-

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The explanation of their absence from the liver seems to be that they first exert their activities upon this organ, and die and disappear from it as the parenchyma degenerates. The disappear

ance from the liver is concomitant with their growth in more resistant organs and tissues. Experimental evidence seems to establish the correctness of this view, for Babes found that when rabbits died more than eight days after inoculation, no streptococci could be found in their degenerated internal organs.

The invasion of this sudden and rapidly fatal disease seems to take place through open ulcers. In three cases a gangrenous or putrid tonsillitis seems to have been the channel. In one case where no ulceration was apparent, the presence of the cocci in great numbers in the portal vein suggested infection through the intestinal mucous membrane. In a man, aged 25, an old dysenteric ulcer was demonstrated.

Histology of Varix —

Hodara, in *Monatshefte für Praktische Dermatologie*, xx-1, 1895, gives the results obtained in the study of varices taken from twenty bodies. In some instances the varix was quite appreciable to the naked eye, and in others only became apparent after incising the skin. In all cases normal veins from corresponding parts were examined for comparison. The skin sections were hardened in celloidin and alcohol, the muscular and connective tissue being stained by different methods.

As a result of the study he formulates the following conclusions regarding the production of this condition:

Increased blood-pressure in the deep veins causes enlargement of those in the subcutaneous tissue, followed later by an enlargement of the veins in the skin. Then follow hypertrophy and hyperplasia of the connective tissue, and if these continue the muscular coat is thickened and also that of the intima and media. In this manner the thin stretched wall of the vein becomes thickened—which condition he terms external hypertrophy. Later the internal coat becomes thickened and the muscular wall hyperplastic (internal hypertrophy), and in this way the lumen of the vessel approaches the normal. This the author regards as a true compensation, and as the usual outcome.

In other cases, the blood-pressure increasing, the vessel enlarges and there is an atrophy of the external coat, and a thrombus develops or the vein ruptures.

Traumatisms and Chronic Irritation as Causes of Tumors —

B. B. Davis (Wilkinson's *Omaha Clinic*, January, 1896) contributes on the above subject an excellent *résumé* of the etiological

relations of trauma to the production of tumors. It is the purpose of the contribution to try to show that the theory of Virchow is sufficient without associating it with one of the other theories that all neoplasms can originate from interference with local nutrition. He has examined periodical medical literature for several years past and has been able to gather a number of reported cases in which the causative relation between preceding trauma or irritation and the new formation was so close that he thinks there can be no reasonable ground for questioning it. He has collected in all 142 cases, which are summarized in the following table.

CHARACTER OF TUMOR	CAUSATION				SEX OF PATIENT			Total
	Trauma	Irritation	Scar	Degeneration of benign growth	Male	Female	Not stated	
Cystoma	5	..	..	..	1	4	..	5
Carcinoma	28	19	17	7	20	40	11	71
Fibroma	..	..	..	..	..	5	2	7
Osteoma	13	7	..	..	16	3	1	20
Chondroma	..	1	..	..	1	..	..	1
Glioma	1	..	..	..	1	..	..	1
Lipoma	1	..	..	..	1	..	..	1
Neuroma	2	..	..	..	1	..	1	2
Sarcoma	25	..	1	1	24	7	3	34
	82	34	18	8	65	59	18	142

Complete Regeneration of the Spleen —

Laudenbach (*Virchow's Archiv*, cxli-1, 1895) reports having removed the greater portion of a dog's spleen, and at the end of six months there was a complete regeneration of the entire organ. The removal caused profound disturbance of digestion and impaired nutrition, but notwithstanding this fact the entire organ was reproduced.

BACTERIOLOGY

UNDER THE CHARGE OF GEORGE H. WEAVER, M.D.
Demonstrator of Bacteriology, Rush Medical College, Chicago

A Ready Method of Recognizing the *Bacillus Typhosus* and Its Clinical Value —

Lisner (*Ztschr für Hygiene* bd xxi, 1895 p 25) describes a new culture medium, by the use of which the typhoid bacillus is easily detected in feces etc., and at once differentiated from the *coli communis*. The author, after trying the addition of various chemicals to nutrient media in order to obtain characteristic differ

ential growths of the typhoid bacillus and colon bacilli, finally found the following to be the most satisfactory. Ordinary gelatin is cooked with an infusion of potato (500 grammes to the liter of water), and to this is added enough normal sodium solution to give a slight acid reaction, according to the method of Holz. It is then filtered and sterilized. When it is to be used, one per cent of iodide of potassium is added, the mixture being then inoculated and plates made.

He has examined by the aid of this medium, surface-water, soil, etc., and when colon bacilli were present they grew with almost entire exclusion of other bacteria. The proteus and root-bacillus, which he found grew readily on media containing carbolic acid, only occasionally grew at all on the new culture medium, and then were placed in the background by the colon bacilli. The colonies of colon bacilli show the characteristics which are present when they grow on any acid medium. The typhoid bacillus grows characteristically so as to be readily distinguished from the colon. On the iodide-of-potassium-potato-gelatin, in twenty-four hours the typhoid-bacillus colonies are almost invisible under a moderate magnifying power, while the colon-bacillus colonies appear well grown out, in forty-eight hours the typhoid colonies appear as small, clear, shining, drop-like, finely granular growths, while the colonies of the colon bacillus are large, much more coarsely granular, and brownish.

He has tested thirty different cultures of colon and typhoid bacilli, as isolated upon this culture material, by Pfeiffer's method (*i.e.*, the use of the specific property of the blood-serum from typhoid-immunized animals), and in every case the identification was shown to be correct. In one instance a bacillus which was not distinguishable from the typhoid bacillus by ordinary culture methods was found, upon the use of the iodide-of-potassium-potato-gelatin plates, and also by Pfeiffer's method, to be a variety of colon bacillus. The typhoid bacilli could be readily detected, even if very few in numbers. By use of this method, typhoid bacilli were isolated from the evacuations of fifteen out of seventeen cases of typhoid fever, of the two other cases, one was in the seventh week, and defervescence had taken place in the second.

L. Brieger (*Deutsche Med Woch*, 1895, No 50) gives some observations regarding the clinical value of this culture material in connection with eleven cases. He thinks the detection of the bacilli may be of considerable value in making a diagnosis in mild and doubtful cases. In the ten cases of typical typhoid fever examined, abundant typhoid bacilli were always present in the dejecta as long

as the fever was present. With the decline of the fever the number of bacilli in the stools rapidly decreased. How long a few bacilli may persist during convalescence is not yet determined. In one case where there was a double phlebitis of a lower extremity bacilli were found in the feces forty seven days after the onset. If the bacilli persist in considerable numbers after the disappearance of fever, there is danger of a relapse. This occurred in two of the cases in his series. Among the eleven cases were three nurses. He suggests the advisability of frequent examinations of the feces of those having much to do with the dejecta of typhoid fever patients, and perhaps, if the bacilli are present destroy them in the intestine before they have increased much or caused the disease. The relation between the first appearance of the typhoid bacilli in the intestine and the outbreak of the fever is difficult to determine, on account of the gradual onset. By the time chills and fever are present, many colonies of bacilli are found in the plates.

The Cause of Vaccinia and Variola —

Monckton Copeman (*British Medical Journal*, Jan 4 1896) gives the results of some interesting researches as to the cause of vaccinia and variola, and its cultivation on artificial media. His method was as follows. Eggs were externally sterilized with corrosive sublimate solution and alcohol, a small hole was made in the shell, through which by means of a platinum wire the yolk and albumen of the egg were thoroughly mixed, then, by means of a capillary glass pipette, the contents of the shell were inoculated with a suspension of smallpox crusts in a sterile saline solution, the opening in the shell being immediately closed with a small pledget of sterilized cotton wool soaked in collodion or with melted sealing wax. The eggs were then incubated at 37° C for varying lengths of time. After a month the egg was found to be changed into a creamy material, which appeared when examined by cover-slips, to contain a pure culture of one organism only, namely a bacillus. Inoculations from this onto the various nutrient media usually employed, gave no results. Inoculations of calves were followed by the usual lesions of vaccinia and from these calves virus was obtained which produced typical vaccine lesions in many children.

Some defects in the technique of the author, as acknowledged by himself, leave some doubt as to the reliability of his results. If the repetition of his experiments under more favorable conditions shall be followed by identical results he will have added facts of

extreme importance to our knowledge of the acute infectious diseases, and also perhaps to preventive medicine

E Pfeiffer (*Centralbl für Bakt und Parasit*, 1895, bd xviii, No 25) concludes an article upon the study of the effects of vaccine upon the corneal epithelium of various animals, as follows

1 The changes following the irritation of the cornea with vaccine are specific, caused by a *contagium animatum*, and absent in case of irritation by inorganic materials

2 The contagium of vaccine is observed in the cornea of rabbits, guinea-pigs, and calves, only in the stage of direct division

3 The division begins in a few hours, and is best observed between ten and twenty hours

4 The contagium does not belong to the bacteria

Tetanus Bacilli in the Intestine in Idiopathic Tetanus —

Ludwig Kamen (*Centralbl für Bakt und Parasit*, 1895, No 17-18, p 513) reports a case of fatal tetanus in a male, where the most careful search failed to reveal any injury In the rectum and descending colon were hard masses of feces, in which were various bacteria, among them some with end-spores which the author thinks were tetanus bacilli Cultures and animal inoculations were negative This location of tetanus bacilli is thought by the author to explain many similar cases of "idiopathic" tetanus

THERAPEUTICS

UNDER THE CHARGE OF N S DAVIS, JR, A M, M D,

Professor of the Principles and Practice of Medicine and of Clinical Medicine, Northwestern University Medical School Chicago

Serum Therapy in Surgical Tuberculosis —

G W Cale, in the *Medical Review*, September, 1895, gives his experience with the use of the anti-tubercle serum of Paquin, during the last seven months, he is confident that a great advance has been made in this department of surgery, and reports the following cases

Mrs M—, aged 25 years, mother of two children, youngest six weeks old, had been troubled with tuberculosis of right knee-joint for more than a year, also had beginning pulmonary tuberculosis Two months ago an exsection of the joint was made, which revealed a cheesy tubercular focus in each condyle of the femur and two foci in the head of the tibia The capsule of the joint was gelatinous, and the cavity contained large numbers of the so-called rice bodies The case, in fact, looked so unpromising that a thigh

amputation would have been a proper treatment. A large rubber drainage tube was inserted, the wound closed and the usual dressings applied. One week later the first dressing, tube and sutures were removed. Since that time the wound has been perfectly dry and has not required re-dressing. The patient has been entirely free from pain ever since the operation, and has slept well every night. Her appetite is good and she has improved greatly in general health. Has been given 30 drops of serum daily since the operation.

Another case is that of a young man aged 18 years, who had had coxitis of the right hip eight years ago. He presented ankylosis of the joint and several fistulous tracts running through the thigh, a tubercular abscess of the left tibia and one of the sternum, a tubercular nodule in the skin of the scrotum and an abscess near the apex of the left scapula. He had undergone nine operations on different parts of his body during the last eight years. Four of the abscesses were still discharging a characteristic tubercular pus when he came under Dr. Cale's observation. He received daily injections of serum in doses of 20 to 30 drops. One abscess closed, and the discharge from the others after four weeks' treatment was reduced four fifths.

The progress of these cases was favorable and numerous microscopical examinations of tubercular products during the treatment with the serum invariably showed the bacilli decreasing in numbers, also disintegrated tubercle bacilli which it is thought resulted from the specific action of the serum due to the nuclein which it contains. This latter will form the title of a paper to be published shortly.

Strychnine in Viper Bites —

R. P. Banerjee (*Indian Medical Gazette*, July 1895) describes two cases treated with strychnine. The first patient was incoherent, pupils dilated and insensible to light. There was a fixed staring expression, severe frontal headache, and he staggered when standing. Two punctures were found on left foot, one over the instep and the other at the scapho-metatarsal joint, about three-fourths of an inch in depth. They were discharging a fluid non-coagulable blood. The foot was painful and edematous. This case took altogether four-fifteenths of a grain of strychnine by hypodermic injections. The patient was a total abstainer being a Vaishnav by caste and made a good recovery. It was safe to trust to strychnine until the irides were sensitive and contracted, and then ammonia and brandy were given.

In the second case the pulse was 100, temperature 99.6°, tongue cold and clammy, eyes bright, conjunctivæ injected, pupils dilated, severe pain in the head—a touch on the frontal protuberance startled the patient, who was senseless, tenderness at the pit of the stomach and renal regions, breathing stertorous, expiration with rattle, tongue drawn within the mouth, cyanotic patches on the chest and face and along the right leg, right foot swollen—two distinct punctures were found a quarter of an inch deep and three-fourths of an inch apart, bleeding thin non-coagulable blood, edges very much ecchymosed. The punctures were situated at the astragalo-scapoid articulation on the dorsum of the foot. This man took in all six-fifteenths of a grain of strychnine in divided doses hypodermically. He made a good recovery.

Tetanus Antitoxin —

F. H. Marson (*Lancet*, August, 1895), after detailing a case treated with antitoxin, summarizes all the procurable published and unpublished cases treated by antitoxin up to that time. They number thirty-eight. He points out, in reviewing the mortality statistics in this disease, that there appears to be some considerable difference of opinion, this arising in a great measure from some writers describing the disease as occurring both as an acute and chronic affection, while others seldom or never recognize it as occurring in a chronic state. The following analysis gives the number of recoveries and deaths of the cases treated with tetanus antitoxin.

	Recoveries	Deaths
Total number of cases collected including cases that are only mentioned as having been treated, no further particulars being given, 38..	25	13
Number of cases treated of which particulars are given 22.	17	5
Number of cases treated, of which particulars are given and which were regarded by their recorders as 'severe,' 9	5	4
Ditto, "not severe," 13..	12	1

He thinks the average mortality of tetanus in chronic cases may be regarded as 50 per cent, and in acute or severe cases as 90 per cent. Of the 38 cases, only 22 were fully reported, they fall under their respective heads as follows (1) Cases in which the symptoms commenced to abate immediately after injection and then steadily disappeared, 9, (2) those which remained *in statu quo* for a short time after injection and then gradually improved, 6, (3) those in which no further muscles became involved in spasms after com-

mencement of treatment, though occasionally an aggravation of certain other symptoms (as trismus and difficulty in swallowing) occurred, 2, (4) those ending fatally notwithstanding treatment, 5. Space does not permit of a detailed notice of the cases, but in spite of the unfavorable result of the case treated in the Staffordshire General Infirmary he has come to the conclusion that the antitoxic serum has a favorable effect in certain cases of tetanus, and those not always of the mildest form. This serum may be justly called a remedy of such importance that up to the present time no other method of treatment of tetanus can bear comparison with it. He is of the opinion that it is destined considerably to decrease the mortality in tetanic cases—although there is probably much to be learned and many details will have to be modified or altered.

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN, A.M. M.D.

Professor of Clinical Gynecology in the College of Physicians and Surgeons of Chicago
Professor of Gynecology in the Post Graduate Medical School. Vice President
of the Chicago Gynecological Society, etc.

Menstruation and Reproduction —

A. W. Johnson, M.D., (*Medical Standard*) some years ago discussed the relations of menstroid states in domestic animals, in a paper read before the British Gynecological Society,¹ which contained a systematic study of the cycle of "rut" in the dog. It is extremely interesting to observe the gradual growth of the protoplasm of the endometrium of the dog as "rut" approaches, and large masses of rich corpuscular development are formed to receive the ripening ova. Nature gets rid of that material by the lymphatics when conception is missed. The corpuscles undergo granular degeneration, are reabsorbed, swept away through the lymphatics, and used up in the economy. This process is identical in all horizontal animals. When an animal becomes domesticated he is fed regularly, his nervous system is always in good condition, and he is thus prepared for more frequent "rut" than when in the wild state. The changes in the endometrium necessary to the reception of the egg require a longer or shorter interval.

The only researches of value on menstruation in monkeys are those of Bland Sutton† and Walter Heape‡. The latter says that the *Semnopithecus entellus* menstruates with fair regularity at least

¹ *Brit. Gynecological Journal* 1885.

† *British Medical Journal* August 1886.

‡ *Philosophical Transactions*, 1894.

five or six times a year. He adduces as one of the strongest arguments for the separation of ovulation and menstruation, the fact that although these animals menstruate five or six times a year, they have but two breeding seasons. He has not examined the monkey during the rutting season. His description of the endometrium is identical with Dr. Johnson's observation on the girl just beginning menstruation and on the dog in the mid-interval of the rut. He regards the endometrium as an undifferentiated tissue ready for sudden action and capable of making immense amounts of protoplasm on short notice. Had he studied it at the time when the uterus must receive the impregnated ovum, he would have found the protoplasm far more abundant. His description of the shedding of the epithelium coincides almost exactly with that of Dr. Johnson's original paper on the menstrual organ. The only difference relates to the method of production of the protoplasm, but he did not observe its structure when it was in the most rapid stage of development.

One of the greatest objections to the acceptance of Dr. Johnson's idea of menstruation has been Remak's law. Nine years ago Dr. Johnson stated positively that the epithelium lining the endometrium was produced directly from the tissues beneath it, and that it did not always grow from epithelium. Twenty years ago Remak's law—that the epiblast and the hypoblast exist in continued separation throughout life, that they have a dual existence, and that they are two separate and distinct entities living side by side in the same body throughout life—appeared to him absurd.

Dr. Johnson undertook some original studies in the winter of 1876-77 to find out how the lymphatic corpuscle is manufactured. After working one winter he succeeded in establishing beyond doubt that the granules in the threads of this reticular tissue gradually grow, become full-grown corpuscles, separate from the threads, and float in the lymph. For two winters thereafter he worked on the same subject with reference to the epithelium, but the idea of karyokinesis so fully dominated his thoughts that his results were not at all satisfactory, although he found that the hyaline layer is sometimes extremely granular, and that there are all forms of gradations from the little granule up to a young epithelial cell protruding from it into the rete Malpighii. This he first saw in an ordinary section of skin, again in the frog of a colt's foot, and afterward in the matrix of the nail. The idea of cell-division still so strongly possessed him that he was not satisfied and never understood the correct idea of reproduction of epithelium in the adult state until

1886-87, when by study of feature development he found that the little granules in the hyaline layer gradually grow and protrude into the rete Malpighii until the full grown epithelial cell of the deep layer is made. The only difference between the epithelial and connective tissue is, that at a certain point the undifferentiated protoplasm begins to secrete a glue like substance which marks the line between sustentacular and protective tissue. Examination of feather papilla in the quiet state—namely when the plumage is full grown—and then in the moulting condition when the young feather is just beginning to extend through the skin will demonstrate this. In the first the feather papilla is ordinary mucous tissue, with large nuclei and corpuscles branching in every direction, it contains a number of blood vessels even in the quiet state, because the tissue is so abundant that transudation is not sufficient to nourish it, and a better blood supply must be had. In the active state where plenty of rich protoplasm is necessary every function is found intensified, the granules in these threads are enlarged and grow until the whole lower part of the papilla is a mass of protoplasm made up of corpuscles very closely resembling lymphatic gland. The black lines higher up are the mature epithelial columns which build up the feather.

Observation of the gradations from the beginning at the bottom of the feather up to the columns will demonstrate the gradations of the neutral protoplasmic corpuscles into the full grown epithelial cells. This illustrates the law of supply for the waste of all epithelial tissues in adult life, where the young cells are buds from the sustentacular hyaline layer surrounding the gland. In this group of ciliated epithelium down next to the hyaline layer the young cells are just growing away from the latter. Our ideas of the reproduction of epithelium in adult life must be completely reconstructed. The conditions in adult life are very different from those in embryonal life. In the embryo growth, destruction and repair take place rapidly. In the rapid changes of development from the metazoic ages up to the highest development of animals, time is the great desideratum. It would be impossible to wait for the growth of the cell from a little granule. Karyokinesis is therefore the process used in cell production in the embryo, but in the adult the cell is produced from the granule and is the source of supply for the tissue waste from the wear and tear of every-day life.

This method of cell production has not been described before. At the time Remak's law was formulated, ideas as to the condition of the tissues of the body were chaotic and some such formula as

five or six times a year. He adduces as one of the strongest arguments for the separation of ovulation and menstruation, the fact that although these animals menstruate five or six times a year, they have but two breeding seasons. He has not examined the monkey during the rutting season. His description of the endometrium is identical with Dr Johnson's observation on the girl just beginning menstruation and on the dog in the mid-interval of the rut. He regards the endometrium as an undifferentiated tissue ready for sudden action and capable of making immense amounts of protoplasm on short notice. Had he studied it at the time when uterus must receive the impregnated ovum, he would have found the protoplasm far more abundant. His description of the shape of the epithelium coincides almost exactly with that of Dr Johnson's original paper on the menstrual organ. The only difference is in the method of production of the protoplasm, but he did not observe its structure when it was in the most rapid development.

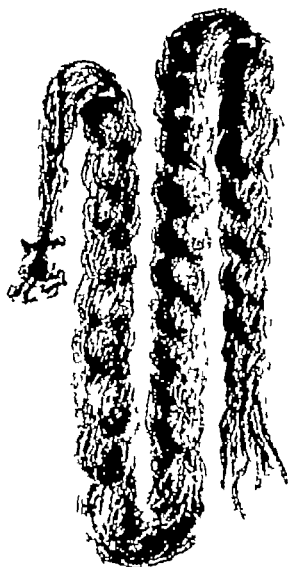
One of the greatest objections to the acceptance of Dr Johnson's idea of menstruation has been Remak's. Dr Johnson stated positively that the epithelium of the endometrium was produced directly from the epithelium of the skin, that it did not always grow from epithelium, but that it did so in accordance with Remak's law—that the epiblast and the endometrium were separated throughout life, that they were not continuous, that they are two separate and distinct bodies throughout life.

Dr Johnson undertook in 1876-77 to find out how the endometrium was produced. After working one winter he found that the granules in the endometrium grow, become full, and float in the lymph. He was on the same subject in 1878, and his conclusion was that the endometrium is produced by mitosis so full of granules that it is all satisfactory, and that it is produced in times extremely great from the little granules in the skin. He put it into the rete Malpighii of the skin, again in the form of granules in the matrix of the nail. He suggested to him that he had the correct idea of reproduction.

the manufacture of the endometrium. The hyaline layer with its various modifications is the matrix of all epithelial tissues, and from it spring all the varied sexual ornaments. The feather papilla, the hair papilla, and the endometrium are only local hypertrophies of this same structure for a specific purpose, and only upon wearing out of the structure does extreme old age occur. This gives a key to cirrhosis, because the hyaline layer with all its reduplications in the capsules of secreting organs can easily, as a result of slight irritation, instead of forming secreting cells, take another course and form connective tissue.

Dermoid and Solid Tumors of the Ovary —

Dr. Mundé, in his report of the gynecological service at Mount Sinai Hospital, states that in two instances he has observed very peculiar contents in dermoid cysts, one containing numerous small



Switch of hair 5½ feet long from dermoid cyst

buttons of sebaceous matter, each containing a hair, and the other a development of hair which is almost unique in medical literature. The cyst was removed from a virgin 41 years of age, the other

ovary containing hair, teeth, and bones, but in a much less marked degree. The tress of hair which is shown in the cut was closely matted together and surrounded by a small amount of thick pea-soup fluid. On dissolving the sebaceous material in ether, the hair became clean, and, after suspension, now measures nearly seven feet in length. All this mass of hair sprang from one small nipple inside of the cyst not more than an inch in diameter. He cannot determine whether all the strands of hair extend the whole length of the switch, because they are so matted together that it is impossible to properly isolate them. The hair is of a dark blonde color and as perfect in formation as the hair of the female head, but perhaps a trifle finer.

He has seen but two solid tumors of the ovary which he was able to remove. One was from a young single lady from the South, a case regarding which he was for some months in doubt as to whether the hard, movable mass in her abdomen was a pediculated fibroid of the uterus or a solid ovarian tumor. The pain finally induced him to decide upon an abdominal section, when he found that the mass was a solid tumor weighing a pound and a half and springing from the left ovary, the hilus of which was still visible at the base of the tumor. Finding the other ovary slightly cystic, the cystic portion was excised and the wound closed with catgut. The patient made an uneventful recovery. Solid tumors of the ovary are so rare that Spencer Wells records only two instances in over a thousand ovariectomies.

PEDIATRICS

UNDER THE CHARGE OF W. S. CHRISTOPHER, M.D.

Professor of Diseases of Children, Chicago Polyclinic. Professor of Pediatrics, College of Physicians and Surgeons, Chicago.

Causation and Early Treatment of Mental Disease in Children —

Alfred W. Wilmarth (*Medical and Surgical Reporter*, Jan 11, 1896) presents an excellent study of this subject. He points out that the laws of heredity, so far as they affect such subjects, are entirely beyond our control, and that the marriage of the unfit, producing offspring certainly destined to become a burden, plays an important part in the production of these conditions, and is one that we can never hope to remedy. The census of 1890 showed over 95,000 feeble-minded in our country, and their number at present will approximate and probably surpass the 100,000 mark.

He has studied 1000 histories taken from the Elwyn School for

the feeble-minded, omitting all cases where direct heredity could be traced or where the infirmity appeared to be congenital or the result of accident at birth, or where spasms occurred or lack of ordinary intelligence was noticed before the age of six months, or where the patient was too young to admit of a decision as to his intelligence at the onset of the alleged causative disease regarding such cases as possibly congenital. He also declined to count any case said to be due to traumatism, unless spasms, paralysis or other symptoms of nervous shock directly followed the accident.

Notwithstanding this careful pruning, no less than 322 cases out of the 1000 appeared to have been the direct result of disease which would ordinarily need and receive the physician's care. From his article we extract the following table which shows the relative frequency of the diseases in which the cerebral mischief appears to originate, and the age of onset.

	At 6 months	6 to 12 months	12 to 15 months	15 to 21 months	2 to 5 years	5 to 10 years	10 to 15 years	Age unknown	Total
Spasms of dentition	2	39	25	19	—	—	—	—	95
Traumatism	1	10	2	4	20	6	3	1	47
Cerebral inflammations	5	1	8	1	14	2	4	12	47
Scarlet fever	2	2	3	1	15	9	1	2	40
Epilepsy of unknown origin	—	—	—	—	10	3	5	2	20
Mental shock (fright)	—	1	1	—	4	2	2	1	11
Gastric and typhoid fever	—	—	1	1	5	1	—	—	9
Whooping-cough	1	1	1	1	4	—	—	1	9
Measles	—	2	2	1	2	1	—	1	9
Exposure to heat (sunstroke)	—	—	1	—	1	—	1	—	3
Fever (form unknown)	1	—	—	1	2	3	—	—	7
Cholera infantum	—	1	4	—	—	—	—	1	6
Smallpox	—	1	1	—	—	2	—	—	4
Malarial fever	—	2	1	—	—	1	—	—	4
Infantile paralysis	1	1	1	—	—	—	—	—	3
Diphtheria	—	1	1	1	—	—	—	—	3
Vaccinia	—	1	—	1	1	—	—	—	3
Marsasmus	—	1	—	—	—	—	—	—	2
Catarrhal fever	—	2	—	—	—	—	—	—	2
Abcesses	—	—	1	—	1	—	—	—	2
Exposure	—	—	—	—	1	—	—	—	1
Erysipelas	—	—	—	—	1	—	—	—	1
Poison (wild lilac)	—	—	—	—	1	—	—	—	1
Self abuse	—	—	—	—	—	—	—	1	1

It will be seen that convulsions occurring within the period of dentition heads the list. Then comes traumatism, which includes all injuries from blows or falls on the head. Among the specific fevers, scarlet fever takes the lead for its destructive effects on the nervous system, although the cerebral inflammations claim an equal number. Fright occasions an unexpectedly high number, but in each case counted the history seemed to completely substantiate this as the active cause.

He is distinctly of the opinion that the small skull is the *result* of a small brain rather than the cause. He has rarely seen evidences of pressure, and he regards the causes which are given in the above table as being decidedly more efficient than those which are attributed to early ossification of the sutures of the skull. In this connection he gives a table of 300 autopsies, gathered from all sources, in which the diseases and conditions found in the brain are fully set forth, and he supplements this by 100 consecutive autopsies made at the Elwyn Institution, in which in 54 per cent conditions were found constituting the residual effects of former disease or traumatism. We give below the table of 300 autopsies.

CEREBRAL CONDITION	HEMISPHERE DISAFFECTED				Total
	Right	Left	Both	Not stated	
Atrophic sclerosis	21	14	18	23	96
Porencephalus	14	9	15	9	47
Porencephalus and atrophy	3	6	4	1	14
Agensis ..	1	6	9	6	22
Tuberous sclerosis	1	1	11	0	13
Atrophy with internal hydrocephalus..	0	0	2	0	2
Atrophy with cyst	1	0	1	0	2
Atrophy with hypertrophic skull	0	1	2	0	3
Hydrocephalus ..	0	0	17	0	17
Thickened membranes.	0	0	14	0	14
Thickened membranes and vessels	0	0	2	0	2
Defective corpus callosum ..	0	0	29	0	29
Microcephalus	0	0	10	0	10
Hypertrophy	0	0	15	0	15
Hypertrophy with sclerosis	0	0	1	0	1
Cyst	3	0	0	2	5
Primary disease in cells, fibres, or both	2	0	3	1	8

The natural deduction to be drawn from this author's paper is that the commonly accepted opinion of too early ossification of the sutures of the skull as being an efficient cause of idiocy has small support, and that the operation of craniectomy based upon such a conception is rarely applicable—in any event, only after the most thorough study of the individual case justifies so serious a procedure.

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.,

Professor of Neurology in the Chicago Polyclinic, Consulting Neurologist to the Illinois Eastern Hospital for the Insane

The Symptomatology of Locomotor Ataxia —

Leimbach (*Deut Zeit für Nerv*, 1895, bd 7, p 493) furnishes some interesting statistics as to the relative frequency and early appearance of the principal symptoms of locomotor ataxia (tabes dorsalis), his material being furnished by a study of the notes of

600 cases from the private practice of Erb. Of these, for various reasons, only 400 were found available, which is still a most satisfactory number for statistical purposes. As earliest symptom, the lancinating pains were by large odds the most frequent, occurring as an initial manifestation of the disease in 283 of the 400 cases. In 65 cases they occurred as second symptom, and in only 47 were they absent up to the time of the examination. In one case they remained the only symptom for twenty six years, and in several for from ten to fifteen years. The figures regarding the initial appearance of this and all other symptoms are not absolutely correct for when the disease apparently began with the simultaneous appearance of two or more symptoms they were all counted as "earliest symptom". A feeling of weakness in the legs occurred as earliest symptom in 78 cases, and as second symptom in 113, which is somewhat surprising, as it is well known that in the early stage there is no real weakness. It is also worthy of remark that the girdle feeling, commonly regarded as so frequent, occurred as first symptom in only 34 cases, and as second in but 44. Paresthesia of the lower extremities was the initial symptom in 74, and the second symptom in 110 cases.

It is a matter of regret that many physicians in the examination of cases suspected to be locomotor ataxia, give too much importance to the presence or absence of incoordination. It cannot be too emphatically stated that the presence of the symptom ataxia is never necessary to the diagnosis of the disease locomotor ataxia and we would therefore particularly note that uncertainty in standing, even with the eyes closed, was the alleged earliest symptom in only 3 of the 400 cases under consideration, and the second symptom in only 21. As incoordination is too much sought for, so are the slight bladder symptoms, so frequent in incipient tabes, and so important in the diagnosis, too frequently neglected. This cystic incompetence may take the form of slight atony so that the patient must wait a short time and strain a little to start the stream, or there may be some dribbling after urination is seemingly finished or there may be a relative weakness of the sphincter, the patient losing a few drops of urine if he be not very prompt in obeying the calls of nature. In one or another form this cystic weakness occurred as initial symptom 90 times, as second 119, and as third 74 times. Diminution of sexual desire as first symptom is noted 41 times as second 45, and as third 31 times.

The relative frequency of the different symptoms, objective and subjective, is shown in the following table.

SYMPTOMS

	Per cent
1 (a) Failure of knee jerk and Achilles jerk	92
(b) Alteration in these reflexes	4 25 } 96 25
2 Swaying with eyes closed	88 75
3 Lightning pains	88 25
4 Disturbances of the bladder	80 5
5 Ataxia of the lower extremities	71 75
6 Changes in the pupillary reactions	70 25
7 Paresthesia of lower extremities	64 5
8 Feeling of weakness in the legs	62 25
9 Diminution or disappearance of sexual desire	58 25
10 Alterations in size of pupils	48 25
11 Delayed conduction of pain	36 5
12 Slight analgesia of lower extremities	33 75
13 Girdle sensation	31
14 Transitory double vision	26 5
15 Diminution of sense of touch on lower extremities	23 25
16 Paresthesia in ulnar distribution	.. 16 5
17 Ocular paralyses and ptosis	.. 16
18 Optic atrophy	6 75
19 Persistence of painful impression in the legs	6
20 Various crises	5 25
21 Arthropathies	1 75

It has often been asserted that organic heart disease is particularly frequent in locomotor ataxia. It is of interest therefore to note that in the 300 cases in which this was examined for, there were two cases of mitral insufficiency, one of mitral insufficiency with aortic stenosis, two of aortic insufficiency, one of aortic insufficiency with aortic stenosis, and one case of aneurism of the aorta—that is, only seven cases of valvular disease. All of these had undoubted syphilis.

Two Patients with Locomotor Ataxia who had Contracted Syphilis from the Same Source —

Marie and Bernard (*Journ des Prat*, Oct 26, 1895) relate the two following interesting cases. Two friends went together to Paris in 1869, and the same evening contracted syphilis from the same woman in the same way. In 1890 one had the first symptom of locomotor ataxia, the disease showing itself first by ocular disturbances. One year later the other showed symptoms of the same disease, which manifested itself in the same manner. Two years later both were suffering distinctly from locomotor ataxia, lightning pains and incoordination having made their appearance.

Prevention of Insomnia due to Noises —

Almost every practitioner meets with nervous patients who are kept awake by the ordinary noises of the home and the street. Plugging the ears with cotton is not satisfactory, as it does not exclude sounds very well, and the cotton itself rustles and crackles

—sometimes synchronously with the pulse—sufficiently to keep the patient awake. For these sufferers Rosembach (*Gazette Méd de Paris*, Oct 12, 1895) proposes the following. A tongue of wadding 6 by 3 by 1 centimeter is covered with a layer of vaselin and rolled into a tampon, which is inserted into the auditory meatus to the depth of two centimeters. The protruding end is then spread out over the external ear and covered with a layer of dry wadding. This will exclude all but the most intense noises but care must be exercised the following morning to properly cleanse the meatus.

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF W. L. BAUM, M.D.

Professor of Dermatology and Syphilology in the Post-Graduate Medical School Chicago
Fellow of the Chicago Academy of Medicine

The Aachen Treatment of Syphilis —

Dr J. Bion Bogart read a paper before the Brooklyn Surgical Society (*Brooklyn Medical Journal*, December, 1895) in which he described the Aachen treatment of syphilis. He says that the temperature of the waters used for therapeutic purposes is from 38° to 72° C., and they contain from 22 to 28 grammes of chloride of sodium, 4 to 5 grammes of sulphites, and 8 to 12 grammes of carbonates, to 10 000 Cc. The waters are used for immersion douche, and vapor baths, and are taken internally.

A bath in Aachen of 95° F. of half an hour's duration makes the skin soft and moist, and the chlorides and bicarbonates contained in the water free it in the simplest and most agreeable manner from adherent epidermic scales, moreover, by the opening of the sebaceous and sweat ducts all obstructing masses of secretion are easily removed. Whilst these circumstances favor the increased excretion of gaseous and fluid substances, both during and after the bath, the skin is also prepared for taking up medicinal substances which are employed with effect in the course of certain methods of treatment.

The Aachen treatment is theunction treatment of Sigmund facilitated and protected by the use of the Aachen waters internally and externally, as immersion douche and vapor baths. Moreover, during the treatment the most scrupulous attention is paid to local and general hygiene and the nutrition of the body is energetically maintained.

Dr. Bernard Brandis, *Geheimer Sanitätsrat* Aachen, in a paper translated by Hugh A. Auchincloss, of Dublin, in 1881, announced

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Prevention of Insomnia due to Noises —

Almost every practitioner meets with nervous patients who are kept awake by the ordinary noises of the home and the street. Plugging the ears with cotton is not satisfactory, as it does not exclude sounds very well, and the cotton itself rustles and crackles

—sometimes continuously with the pulse—sufficiently to keep the patient comfortable. For these purposes Rosembach (*Gazette Méd de Paris* Oct 11 1895) proposes the following. A tongue of wadding 6 or 7 cm in length is covered with a layer of vaselin and rolled into a tube which is inserted into the auditory meatus to the depth of 1 cm. The protruding end is then spread out over the external ear and covered with a layer of dry wadding. This will exclude all but the most intense noises, but care must be exercised the following morning to properly cleanse the meatus.

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF W. L. BAUM, M.D.,

Professor of Dermatology and Syphilology in the Post-Graduate Medical School, Chicago.
Fellow of the Chicago Academy of Medicine.

The Aachen Treatment of Syphilis —

Dr J Bion Bogart read a paper before the Brooklyn Surgical Society (*Brooklyn Medical Journal*, December, 1895) in which he described the Aachen treatment of syphilis. He says that the temperature of the waters used for therapeutic purposes is from 72° C, and they contain from 22 to 28 grammes of calcium carbonate, 4 to 5 grammes of sulphites, and 8 to 12 grammes of carbonates, to 10,000 Cc. The waters are used for immersion, douches, and vapor baths, and are taken internally.

A bath in Aachen of 95° F of half an hour's duration makes the skin soft and moist, and the chlorides and bicarbonates contained in the water free it in the simplest and most agreeable manner from adherent epidermic scales, moreover by the opening of the sebaceous and sweat ducts all obstructing masses of matter are easily removed. Whilst these circumstances favor the increased excretion of gaseous and fluid substances both during and after the bath the skin is also prepared for taking up medicinal substances which are employed with effect in the course of certain methods of treatment.

The Aachen treatment is the inunction treatment of Syphilis facilitated and protected by the use of the Aachen waters internally, and externally as immersion, douche, and vapor baths. Moreover, during the treatment, the most scrupulous attention is paid to local and general hygiene and the nutrition of the body is carefully maintained.

Dr Bernard Brandis, *Geheimer Sanitätsrat* Aachen, in a paper translated by Hugh A. Auchincloss, of St. Louis, in 1901, announced

the following "Principles of the (inunction) Treatment of Syphilis" "The body must always be adequately prepared for the absorption of the mercury, and the gray ointment must always be administered carefully and in sufficient quantity The body must, during the treatment, be preserved sound The inunction treatment must be carried out long enough"

The principles of the Aachen treatment cannot be better stated

The preparation used for the inunctions is the Unguentum Hydrargyri Cinereum of the German Pharmacopœia, which differs from ours by containing one-third less mercury and twice as much lard as suet, while ours contains these two ingredients in equal amounts The German preparation is, therefore, weaker and softer, both of which qualities make it more suitable for inunction Another very important point is that the ointment is always freshly prepared, hence less irritating to the skin and better borne by the system in general

To meet the first indication, that "The body must always be adequately prepared for the absorption of the mercury," an immersion bath of 95° F of half an hour's duration is usually all that is necessary, if we remember the remarkable effects of the Aachen waters in softening and cleansing the skin The bather sits on a marble seat with the body completely submerged Soap is not required and, as a rule, none is used except after each course of inunctions to prepare for the next Immediately after the bath the patient is dried, and the inunction follows in the order laid down by Sigmund "On the first day rub both legs, on the second, both thighs, on the third, abdomen and breast, on the fourth, the back, and on the fifth, both arms" In Aachen the sides of the body take the place of the abdomen and breast in Sigmund's formula

The amount of ointment used at each inunction varies in the adult from 4 to 10 grammes (1 to 2½ drachms) The rubbing lasts twenty minutes, and is done by experienced rubbers, who use both hands, unprotected, simultaneously These men often give from ten to fifteen treatments for several days in succession, yet seldom experience any ill-effect from the drug

Three or four glasses of the water are drunk daily during the entire course of treatment, generally before breakfast

The vapor bath is generally ordered when the patient not only ceases to improve, but also exhibits a return of symptoms previously subdued, or new phases of the disease make their appearance These phenomena are interpreted as indicating that the mercury is no longer active In such cases vapor baths are usually given on

three successive days, the injections being meanwhile interrupted. Afterward, a vapor bath is generally administered every tenth day to guard against a recurrence of these symptoms.

The use of atropine in syphilitic iritis, the local application of mercurial plasters over painful areas, glandular and bony swellings, and for various syphilides of the skin antiseptic lotions, douches and dressings, and the sharp spoon and scalpel—all find their appropriate places as adjuncts to the "Aachen treatment." The use of cutting instruments is, however, limited to suppurating and ulcerative processes.

One of the most striking features of the Aachen cure is the comparatively insignificant rôle which it assigns to the iodide of potassium. This drug is looked upon as for the most part a symptomatic remedy, for, while its marvellous power to relieve pain and ameliorate certain symptoms of a distressing and often dangerous character is freely acknowledged and frequently taken advantage of, it appears to be almost universally distrusted as a curative agent. Perhaps this fact cannot be better illustrated than by the following quotation from an article upon the Aachen treatment by Drs Brandis and Schumacker: "But whilst recognizing the magical results produced by iodide of potash, we must not forget that experience teaches that the worst lesions only slumber during its administration, and we must not be betrayed by its power of causing the disappearance of symptoms into the belief that the disease has been extinguished. The early stages of central nervous disease, especially commencing tabes with its paralyses, which may quickly disappear on the exhibition of iodide of potash often prove the deceitful nature of the remedy by a later and severe outbreak of the disease."

The treatment may be employed in all cases where relief is possible, and no individual peculiarity and no time of life makes an exception.

Experience teaches that the earlier symptoms may extend over a period of years, but suitable treatment and careful watching will bring the majority of patients to the wished for goal of perfect recovery within from one to three years, while the recurrence of the earlier signs of the disease seven or eleven years after infection, which we have sometimes seen is to be regarded as exceptional.

An exemption of at least two or three years from the earlier manifestations of syphilis must precede marriage.

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LARYNGOLOGY AND OTOTOLOGY

UNDER THE CHARGE OF W. J. CASSIDBERRY, M.D.,

Professor of Therapeutics and of Laryngology and Rhinology in the Northwestern University Medical School, Laryngologist and Rhinologist to St. Luke's Hospital, Laryngologist to Wesley Hospital, etc

Etiology and Treatment of Chronic Enlargements of Lymphatic Glands, with Special Reference to those of the Neck

James H. Nichol (*Glasgow Medical Journal*, January, 1896) has had an experience covering 500 cases of enlargement of the cervical glands, of various types, in children, in the service of the Royal Hospital for Sick Children, and has investigated chiefly through means of operation on the glands. Acute or pyogenic enlargement, whether progressing to actual suppuration or ending in resolution, is invariably due to a pyogenic lesion in the peripheral area, draining into the affected glands. Of the various chronic enlargements, only one group is presumptively primary—the lymphadenomata, including both the leukemic and non-leukemic forms. To this group might be added cases of so-called lymphosarcoma. All other cases of chronic enlargement are secondary. Carcinomatous and syphilitic glands are excluded from this study, and the remaining cases of chronic enlargement can be divided into two groups, simple and tuberculous. These two forms doubtless overlap more or less, and one result of the author's study is a conviction that, preceding tuberculous involvement of the glands, there may be a simple chronic enlargement which predisposes those glands to tuberculous disease. The simple enlargements may persist for months without marked change and be directly dependent on chronic eczema or prurigo, or, in the case of the cervical lymphatic glands, upon acute tonsillitis and other forms of acute and subacute inflammations in the upper respiratory tract. At times these disappear shortly after the peripheral affection has been remedied, or again they may persist subsequently for months. On the other hand, the author found cases every now and then in which glands, the seat of chronic enlargement apparently simple, ultimately became affected by tuberculosis. He gives special consideration to these and other groups of tuberculous glands, and to cases which frequently still are called scrofulous or strumous enlargements, the tuberculous group being by far the largest of all, constituting some 96 per cent of those which proceed to surgical removal from the neck.

Etiology—(1) Decayed teeth do not give rise to disease in the lymph-glands, unless the caries is associated with deep ulceration of

the gum or has resulted in the formation of a sinus, and when glands are affected in this way the enlargement appears first in the submaxillary chain, not in the deep carotid glands (2) Skin eruptions of the face and of the scalp readily affect the lymph glands, but the affection is a strictly pyogenic one, yielding pus or pyogenic cocci only, not tubercle bacilli. These pyogenic enlargements, like pyogenic affections of other tissues, not infrequently resolve without suppuration after running a more or less prolonged subacute, or even chronic, course (3) Concerning thrush (*aphtha*), stomatitis, and gingivitis, the author is unable to speak with certainty, but he has observed only one case of adenitis secondary to aphthous ulcers in the mouth in which he had been able to make an examination, and in this case the abscess yielded cocci only (4) Acute follicular or suppurative tonsillitis, and acute phlegmonous pharyngitis, are among the most prolific sources of glandular enlargement, and first affect the deep lymphatic glands along the carotid sheath. The affection of the glands in these cases is apt to be actually suppurative, and pus may burrow a long way in the connective tissue, the author regarding this as one origin of that serious condition known as Ludwig's angina. The first glands to become tuberculous are the deepest ones, those along the carotid sheath and the post-pharyngeal glands, and these are the ones to which the lymphatic vessels of the pharynx and naso-pharynx run. The early history in these cases points to repeated attacks of inflammation in the nose, naso-pharynx, or pharynx, with contemporaneous enlargement of the cervical glands. With amelioration of the catarrhal symptoms the glandular enlargement subsides but not wholly, becoming again manifest or worse on the next attack—which fact, with other collateral considerations, seems to the author to clearly indicate that the source of the glandular mischief is in the naso-pharyngeal membrane, and that while in a certain number of cases the enlargement of the glands ultimately completely disappears in the larger number where there is a predisposition to tubercle the tubercle bacillus finds in these damaged glands a nidus suitable for its development the result being tuberculous disease of the glands. He places the proportion of tuberculous glands to simple chronic enlargement as three to two. By far the larger number of cases are bilateral.

Treatment—In all cases of bilateral chronic enlargement of glands of the neck before excision of the glands is carried out the tonsils are removed, the naso-pharynx scraped, and the mucous membrane of the lower turbinated bodies cauterized. The treatment of the pharynx and nostrils in some instances must be

repeated at intervals of a few weeks, both before and after excision of the lymphatic glands. The tonsils are removed whether they are enlarged or not, and the nostrils and naso-pharynx are treated whether any obvious adenoids or turbinate hypertrophy is found or not, although in most cases the enlargement of these structures is found giving rise to the typical oral breathing, nasal discharge, altered voice, and deafness. In some of the worst cases there are ulceration of the naso-pharynx, caries of the ethmoid bone, and ozena. In the Children's Dispensary the two operations of excision of the cervical glands and the surgical treatment of the naso-pharynx are frequently combined to economize time, the whole being done at one operation. This method, however, is not strongly recommended, as it contains some little element of risk. In all cases the lymphatic glands are carefully dissected out, for when the process has once started in a gland it is certain to go on for some time independently of fresh peripheral provocation, and has a tendency to invade neighboring glands. The object of the naso-pharyngeal treatment is less to benefit the glands already really tuberculous than to prevent involvement of fresh glands and consequent recurrence of the disease.

GENITO-URINARY DISEASES

UNDER THE CHARGE OF G. FRANK FOSTON, M.D.

Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Chicago College of Physicians and Surgeons

Enlarged Prostate, and its Operative Treatment —

In a paper read before the Colorado State Medical Society, June, 1895, Dr Wm P Munn, of Denver, says

Enlarged or hypertrophic prostate is said to be a common condition in the latter half of life. The majority of writers upon the subject estimate that about one-third of all men over fifty years of age have enlargement of prostate, the gland probably remains normal in about 50 per cent of men who reach that age, while in the remainder, say one-sixth, it atrophies.

It must not be supposed that an enlarged prostate necessarily causes important symptoms in every case. In at least two-thirds of the cases there are no symptoms whatever and the subject is unaware of any abnormality, in the remaining cases symptoms occur which may vary in intensity from the mildest intimation of an irritable bladder to the most severe and painful conditions that can be imagined by the mind of man.

The prostate is the homologue of the uterus. Its so called hypertrophy is not a true hypertrophy, but, rather, a pathological process that can best be compared to the development of fibroids or of fibro myomata in the uterus, only that in the male these growths occur more frequently after the age of forty five years, while in the female their occurrence antedates that age. We are accustomed to thinking and speaking of the lateral lobes of the prostate, and of its adventitious middle lobe. In reality the gland, normally, is not well lobulated. Its apparent lobular character is due to its tendency to develop fibroids or myomata or fibro-myomata of a globular shape, and these being frequently developed bilaterally, give the enlarged gland the appearance of bilateral lobulation. When an additional node develops centrally we have what has until recently been designated as 'the middle lobe of the prostate.' These are the more common locations of the fibroid new formations. It is not unusual, however, for the fibroid nodes to be irregularly developed, in which case one side of the gland may be quite free from enlarged nodules while the other is swollen irregularly with globular nodules superimposed one upon another, and readily separable from each other so that the individual nodes may be hulled out like nuts from a shell. Upon section these nodes are found to be almost wholly made up of white fibrous connective tissue, and are surrounded by irregularly meshed involuntary muscular fibres. With these facts in mind we at once see how inaccurate is the term "hypertrophied prostate," for the glandular structure is not in the least increased. The gland has been enlarged *en masse* by the development within it of fibroids but it has not hypertrophied.

An enlarged prostate assumes importance clinically in proportion to the extent to which it interferes with the act of urination. Its anatomical relations with the bladder and urethra are so intimate that it seems strange at first thought that two thirds of the cases in which it occurs do not complain of such interference. But in these cases the enlargement is slight and probably somewhat uniform.

The prostate may enlarge uniformly or irregularly, bilaterally or unilaterally, posteriorly or anteriorly and upon the limitations and the direction of its enlargement will depend to a great extent the array of symptoms making up the clinical picture in the individual case.

Four principal symptomatic manifestations are dependent with more or less exactness upon four different effects of the enlargement.

1. Frequent and urgent micturition is first dependent upon the

repeated at intervals of a few weeks, both before and after excision of the lymphatic glands. The tonsils are removed whether they are enlarged or not, and the nostrils and naso-pharynx are treated whether any obvious adenoids or turbinate hypertrophy is found or not, although in most cases the enlargement of these structures is found giving rise to the typical oral breathing, nasal discharge, altered voice, and deafness. In some of the worst cases there are ulceration of the naso-pharynx, caries of the ethmoid bone, and ozena. In the Children's Dispensary the two operations of excision of the cervical glands and the surgical treatment of the naso-pharynx are frequently combined to economize time, the whole being done at one operation. This method, however, is not strongly recommended, as it contains some little element of risk. In all cases the lymphatic glands are carefully dissected out, for when the process has once started in a gland it is certain to go on for some time independently of fresh peripheral provocation, and has a tendency to invade neighboring glands. The object of the naso-pharyngeal treatment is less to benefit the glands already really tuberculous than to prevent involvement of fresh glands and consequent recurrence of the disease.

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Four principal symptomatic manifestations are dependent with more or less exactness upon four different effects of the enlargement.

1. Frequent and urgent micturition is first dependent upon the

fibrous infiltration of the tissues of the internal sphincter vesicæ, thus causing a more or less permanent patency of the vesico-urethral orifice, and permitting urine to enter the prostatic urethra before the bladder has had time to become completely filled, and thus commanding at once the reflex impulses controlling micturition

2 Painful or burning micturition is dependent largely upon acrid ammoniacal urine and a degree of consequent cystitis. The essential cause of ammoniacal urine is decomposition dependent upon retention of a small amount in the basal cul-de-sac formed by the projection of the enlarged prostate into the cavity of the bladder

3 Obstructed or difficult urination is due to encroachment upon the urethral canal by the enlargement

4 Uncertainty in identifying the calls to urination and defecation is due to posterior enlargement of the gland and its projection into the rectum

Enlargement is more likely to occur toward the cavity of the bladder and of the urethral channel, than in any other direction, because posteriorly and inferiorly fasciæ of considerable resisting power enclose the gland, while anteriorly and superiorly there is no obstacle to the enlargement. The result of upward and forward growth is to elongate and render tortuous the prostatic portion of the urethra, while, at the same time, the vesico-urethral orifice is elevated to a higher level and made more permanently patent from the cystic side. Thus the cystic orifice is more patent from within, while the adjoining prostatic urethra is less patent both from within and from without, on account of its tortuosity. The lengthening of the prostatic urethra is well appreciated when, during an operation by the perineal route, the operator's finger is introduced through the wound in attempting to explore the bladder. In an ordinarily thin subject with a healthy prostate the terminal phalanx of the index finger will project into the bladder beyond the internal sphincter vesicæ, in a subject whose prostate is much enlarged the whole length of the finger is grasped in the prostatic urethra, and not even its tip passes into the bladder. In the three cases operated upon in February last I found this great depth of the prostate

The curve and direction of the prostatic urethra is a matter of some importance. We are accustomed to regard it as simply representing a larger arc of a circle of somewhat greater diameter than the normal urethral curve. To a limited extent this is correct, but as a rule the prostatic urethra is little, if at all, curved. When curved it is of a form very different from the arc of a circle

The encroachment upon the calibre of the urethra by fibroid new growths is most irregular and differs in almost every case. It is sometimes a lateral encroachment, sometimes an encroachment from the floor, sometimes from the roof, and as a rule never from any one direction alone, but from several directions at the same time. The result is that the modification of the urethral channel is most irregular in shape, with but one tolerably constant condition viz, an elevation of the internal orifice. In some cases the urethra is almost straight, in others an oblique angle is present, very often a right angle is present upon the floor and a more obtuse angle upon the roof. lateral encroachments contribute to the formation of an irregular corkscrew channel.

Without operative intervention the further progress of such a case is almost invariably toward a painful miserable fatal termination. Sleep is interrupted at first, and soon absolutely prohibited. The calls for urination become more and more frequent, until without the use of morphia or opium there is not a moment's rest for the inflamed bladder or the overwrought nervous system. Not infrequently the mind gives way under the awful strain, and the last few weeks or months witness a lapse into utter imbecility or acute mania. The picture is as awful, as painful and as certainly hopeless, as it well can be. It justifies the surgeon in recommending, and the patient or his friends in accepting, any proposition for operative relief, no matter how great the risk or how repellent the operation.

From this brief review of the clinical picture it is evident that operative interference is indicated (*a*) when catheterism becomes difficult, painful, or necessarily more frequent than every three hours, (*b*) when, in spite of aseptic catheterism and antiseptic irrigation decomposition of residual urine occurs and persists (*c*) when with or without catheterism the interruptions of sleep are so frequent as to injure the general health, (*d*) when persistently recurring spasm of the bladder is not relieved by catheterism or by medication.

It is evident that in any case operative procedure, in order to be successful must be carried out before the vital forces are so lowered by pain, loss of sleep anxiety and perhaps septic infection that they cannot stand the shock or carry the organism through several weeks or months of confinement in bed. And in this connection it is necessary to seriously consider the general condition of the patient in selecting the operative route or method. The patient whose arteries are markedly sclerotic whose limbs are wasted whose nutri-

tion is far below par, must be recommended to have that operation which can be most quickly performed, which will be followed by the least shock and the shortest convalescence. The younger and more robust our subject, the more likely will he be to survive the more severe operative procedure. The general condition, then, as well as the local condition, must determine our recommendation and choice of method. The procedures are

1 Those which aim at the relief of the bladder by simply providing drainage. There are three (*a*) perineal drainage by trocar and cannula, followed by a catheter inserted through the perineal fistula (temporary), (*b*) drainage by means of perineal urethrotomy, permanent or temporary, (*c*) supra-pubic drainage by supra-pubic cystotomy and establishment of a permanent fistula.

2 Operations aiming at permanent relief by incision or excision of a part or the whole of the obstructing growth. There are three (*a*) perineal prostatotomy and prostatectomy, (*b*) supra-pubic prostatectomy, (*c*) combined perineal and supra-pubic prostatectomy.

3 Operations aiming at permanent relief by inducing atrophy of the prostate gland. There are three (*a*) interstitial injections of ergot or ergotin, (*b*) castration, (*c*) ligation of the spermatic arteries.

[In the performance of prostatectomy our experience is that the combined operation is to be preferred, both from the increased facility of drainage and the control of hemorrhage, to say nothing of the additional ease of enucleation of the morbid tissue. With all due deference to those who are opposed to prostatectomy, we believe that the principal trouble with the operation is that it is seldom performed at the proper period of the disease. Most of the statistics which are quoted to prove that the operation is exceedingly dangerous are those of operations performed after the bladder and kidneys have become seriously involved. Such operations are obviously not fair criteria of the relative danger and success of the operation. With regard to the so-called Senn method of operation in two stages, Dr Munn has fallen into the same trap as numerous other contributors to surgical literature. Some time since, Dr G W Broome of St. Louis wrote an article on supra-pubic cystotomy, in which he alluded to the operation in two stages as the Senn method. This operation was performed in Europe some time before Dr Senn performed his first operation. Indeed, following suggestions embodied in an article in the French *Annals of Genito-Urinary Disease*, the operation in two stages was accomplished by the editor of this department of MEDICINE at about the same time that Dr Senn's

operation was first performed. We do not believe that Dr. Senn ever claimed the operation as his own, and the fact that it has been attributed to him may possibly have escaped his attention. But it certainly would be proper to correct the error into which some of his admiring surgical followers have fallen. "Render unto Cæsar the things that are Cæsar's. —G. F. L.]

FORENSIC MEDICINE

UNDER THE CHARGE OF M. D. F. W. L. L., M. D. L. L. D.

Dean of the Kent Law School Chicago

Decision of the United States Supreme Court regarding Sanctity of the Person —

A woman sued the Union Pacific Railroad Company (*Charlotte Medical Journal*, October, 1895) for an injury to the spine, which she claimed had resulted from the fall of an upper berth of a sleeping car upon her. Three days before the trial the Company asked the court for an order requiring the woman to submit to an examination by the Company's physician, pledging to make it with as little exposure of the person as possible and in the presence of the medical man in attendance upon the woman. The court overruled the motion on the sole ground that it had not the right to enforce such an order. It was carried to the Supreme Court, which sustained the action of the lower one, saying that "such an examination is an invasion of the sanctity of the person to a degree that the law does not recognize, and that it is inconsistent with common law," and further, the opinion said that the Court could not find that, until within a generation, it ever was thought that a court of common law had such a power as was claimed in this case. Justices Brewer and Brown dissented, and it is to be noted that they are the younger men on the supreme bench, who may be said to belong to, to understand, and sympathize with the generation now on the stage. Justice Brewer called attention to the "new times" in which we are living. He said that the actions for damages for personal injuries, now so common, were very infrequent years ago and that it was an open question and not determinable under the old common law procedure. If a person permitted exposure for the purposes of examination by the physicians who were to be called to testify in his or her behalf, it seemed to him but common justice that an order should be made for examination by the opposite side. He did not think it right that any person, where his or her interests

were promoted after making disclosures of the person, should be allowed to refuse this permission to a physician representing the company sued, on the plea of "sanctity of the person"

The Reprint in Medical Practice —

The *Medical Argus* for December, 1895, contains editorial mention of a suit for \$15,000 brought against Dr A. C Bernays, of St Louis, Mo The main facts in the case are as follows Anita George, when six years of age, drank some concentrated lye, which produced stricture of the esophagus Dr Bernays was called and decided that an operation was the only procedure which could save her life The child was taken to the Marion-Sims College and the operation was performed in the presence of some seventy-five physicians and medical students, while the mother of the child was excluded After the operation was performed, it is alleged, Dr Bernays had the child photographed, and from this photograph a half-tone plate was made, which was used in an article in a medical journal describing the case It is also alleged that 30,000 reprints of this article, containing the picture of the girl nude to the waist, were distributed For the publicity of the operation and for the publication of the picture, damages are asked

This is not the first time that physicians have been in court for circulating a reprint of a patient, though, so far as we know, nothing has ever been recovered In this case the child was of tender years, the operation was not for a purpose that would entail shame or disgrace, the account of the case was only circulated among physicians, and there was no evil intent, and probably no injury These, we think, are sufficient reasons to save the physician from heavy damages, yet the instance is of importance and should teach the profession caution in these particulars In mere case-reporting it is easy to conceal the identity of a patient, and where photographs are used it is usually possible to so alter or deface the features that they are not recognizable, without changing their value as illustrations In case this cannot be done, or the physician aims at artistic effects, it would be safer for him to secure the consent of the patient or the patient's legal guardian

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read or in which an abstract appears Articles will be illustrated Authors will be furnished a liberal number of reprints or if they so elect, an honorarium will be paid for original communications

Books for review exchanges and all matters relating to the editorial management should be addressed to Harold N Moyer, M D, 103 State St, Chicago, Ill

All communications relating to the business management of MEDICINE should be addressed to George S Davis Publisher, Detroit, Mich.

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ORIGINAL ARTICLES

DIPHTHERIA AS A MIXED INFECTION IN TYPHOID FEVER— REPORT OF TWO FATAL CASES

BY LUDVIG HEKTOEN M.D

Pathologist to the Cook County Hospital Professor of Morbid Anatomy Rush Medical
College Chicago

The exact etiology of the pharyngeal and laryngeal lesions and complications of typhoid fever merits careful study. While typhoid bacilli are reported to have been found in the laryngeal ulcers by Bayer,¹ Lucatello,² and Cheyne,³ yet it seems quite reasonable that in the majority of the serious cases other micro-organisms than the typhoid bacillus cause the pharyngo-laryngeal complications. The most serious form of pharyngo laryngeal disease in connection with typhoid fever is undoubtedly due to a mixed infection with the bacillus of diphtheria, which very likely occurs with a considerably greater frequency than is generally believed. At the present time, when a positive bacteriological diagnosis of diphtheria complicating typhoid fever can readily be made, and when the antitoxin treatment of the diphtheria would seem to hold out much more favorable prospects for the patient than any other method of treatment it would appear advisable to call the attention of medical men to this special form of very fatal mixed infection in typhoid fever by the report of two cases in which the fatal result seemed to be precipitated by throat complications due to virulent diphtheria bacilli.

The older literature contains numerous references to diphthe

¹ *Safova Annual* 1893, vol. I, p. 46

² *Beitr. zur Pathog. der Kehlkopfkrankh. bei Typhus* *Berl. Klin. Woch.*, 1891, xxxi, p. 379.

³ *British Medical Journal* Dec 15, 1891

ritic throat processes occurring in the course of typhoid fever, in the absence of the bacteriological diagnosis it is, of course, impossible to determine whether or not genuine diphtheria was present in the majority of these cases. The Munich statistics of 2000 fatal cases of typhoid fever (1854-90) show pharyngeal diphtheria 11 times, diphtheria of the mouth once, diphtheria of the larynx with ulcers 107 times, and diphtheria of the lungs 4 times. In 1879 and the two or three following years, quite a discussion was carried on in the British medical journals¹ as to whether the typhoid fever and the diphtheritic throat complications were one and the same disease or different morbid processes. Cases of diphtheria in the course of typhoid fever have been described by Bodman,² Weddich,³ Greenfield,⁴ Jacobi,⁵ Campe,⁶ Luning,⁷ Galliard,⁸ Lejard,⁹ Cushing,¹⁰ Holst,¹¹ Eichberg,¹² Gruder,¹³ Gerloczy,¹⁴ Catrin,¹⁵ Williams,¹⁶ Grayton,¹⁷ Osler,¹⁸ and many others. While the anatomical diagnosis of typhoid fever and of diphtheria was established by post-mortem examination in the majority of all these cases, the bacteriological diagnosis of diphtheria has been made only in isolated instances. Lejard¹⁰ had cultivations made by Quinquand from the false membrane in decoction of chicken (1881), resulting in the growth of a microphyte with large spores, and on administration to a young cock this caused a membranous inflammation containing the same organism. Gruder¹⁹ says that in the Charité in Berlin successful inoculations were made in rabbits. Williams¹⁰ and Councilman demonstrated the Klebs-Loeffler bacillus in the pseudo-

¹ Dukes, *British Medical Journal*, 1879, i, p. 113, Thompson, *ibid*, p. 190, Pope, *London Lancet*, 1882, ii, p. 1055, Thursfield, *ibid*, 1878, ii, p. 181.

² "Diphtheria following Typhoid," *American Medical Times*, New York, 1862, iv, p. 67.

³ "Enteric Fever complicated with Diphtheria," *Irish Hospital Gazette*, Dublin, 1874, ii, p. 148.

⁴ Transactions London Pathological Society, xix, 1878, p. 29.

⁵ A Treatise on Diphtheria, New York, 1880.

⁶ Ueber Kehlkopfkrankheiten bei Abdominal Typhus. Inaugural Dissertation, 1878.

⁷ *Archiv für Klin. Chirurgie*, xxx, 1883.

⁸ *Le Progrès Méd.*, Paris, 1881, ix, p. 288.

⁹ *La France Méd.*, Paris, 1881, xxviii, p. 683.

¹⁰ "Pseudo-membranous Laryngitis complicating Typhoid Fever Causing Death," *Boston Medical and Surgical Journal*, 1882, cvi.

¹¹ *St. Petersburg Med. Woch.*, 1884, N. F., i, p. 17. Holst states that he has often seen pharyngeal diphtheria in typhoid fever, and that for some time every patient in the typhoid wards became infected with diphtheria.

¹² *Cincinnati Lancet Clinic*, 1885, N. S., xv.

¹³ Inaugural Dissertation, Berlin, 1889.

¹⁴ *Deutsche Klin. Woch.*, 1892, No. 15.

¹⁵ *Bul. et Mem. Soc. Méd. d'Hôp. de Paris*, 1893, x, p. 294.

¹⁶ *American Journal of the Medical Sciences*, November, 1893.

¹⁷ *London Lancet*, May, 1894.

¹⁸ Practice of Medicine, 1893, p. 9.

¹⁹ *Loc. cit.*

membranous inflammation of the pharynx complicating a case of typhoid fever, and perhaps this is the only case so far recorded in which an accurate bacteriological diagnosis has been made

The following cases occurred in the medical wards of the Cook County Hospital of Chicago

Case 1 — *Typhoid fever complicated by genuine diphtheritic laryngitis and esophagitis* — Victor A —, age 29, laborer, was admitted to Dr Butler's service (Dr Ryan in charge) Nov 13, 1895, complaining of cough, fever, and general weakness, bowels regular. He stated that he had had gonorrhea two years previously, and an attack similar to the present a year later, at 18 years of age he had pneumonia. He had worked on the drainage canal for several months in 1895. Fourteen days before entering the hospital he had a chill, and a week afterwards went to bed. At the time of admission he was well nourished, tongue dry, spleen palpable, rose spots on abdomen and chest temperature 103° , pulse 108

Nov 14 Diffuse erythema over back and chest

Nov 18 Abdomen distended, pulse dicrotic, some albumin in urine

On Nov 21 he was seen by Dr Edwards, who has kindly furnished the following transcript of notes made at that time "Splenic tumor, bronchitis, lungs otherwise free except evidences of hypostasis pulmonum, heart negative, roseolæ in epigastrium, some tympany symmetrically disposed over entire abdomen, sordes, tongue shows brownish coating, throat negative, fresh intestinal hemorrhage "

Nov 24 High temperature, pulse weak and rapid, little if any diarrhea

Nov 26 Some hoarseness, delirium, oral breathing, pulse rapid

Nov 27 Difficult respiration. There is some edema of uvula and anterior and posterior pillars of pharynx, mucous membrane somewhat discolored, but no distinct exudate

Nov 28 Dyspnea marked, edema of uvula and palate more marked, swallowing practically impossible, pulse weak and irregular. At 8 45 P M tracheotomy was performed by Dr Dysart on account of rapidly increasing dyspnea. Shortly afterwards patient died, in spite of artificial respiration and vigorous stimulation, the pulse becoming imperceptible before respiration ceased

The autopsy was made ninety six hours after death, the body having been kept in a refrigerator at or below the freezing point

Anatomical Diagnosis Typhoid fever (colo typhoid, smooth

ulcers in colon and in ileum near valve), enlargement of mesenteric and retroperitoneal glands, acute splenitis, pigmentation of Peyer's patches Membranous laryngitis and esophagitis due to bacillus *diphtheriæ*, edema glottidis, tracheotomy Bronchitis, bronchopneumonia, splenization of lung, and pulmonary edema Acute pyelitis Adhesive pleuritis, perihepatitis, and perisplenitis

Body about 180 centimeters long, fairly well nourished, rigor mortis not well marked, moderate amount of posterior lividity, hair light yellow, neck thin and long, chest rather flat, abdomen not distended In median line of neck anteriorly, tracheotomy incision

The layers of the peritoneum were smooth and shining Adhesions around the spleen and between the liver and diaphragm Mesenteric and retro-peritoneal glands enlarged Diaphragm level with the fourth rib on both sides

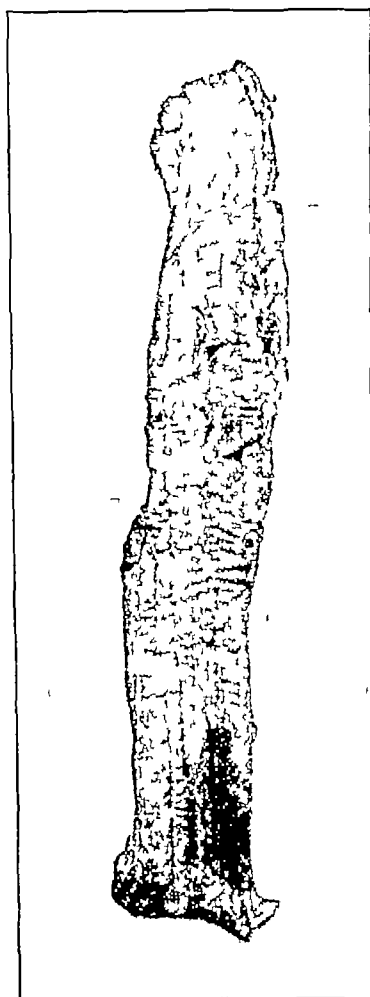
The layers of the pericardium were smooth, the cavity empty The heart weighed 300 grammes, its cavities contained a small amount of fluid blood, valvular and parietal endocardium smooth, myocardium firm and showing perhaps some slight increase in the amount of connective tissue, coronaries and aorta smooth

The pleural layers were adherent in posterior part of both pleural cavities The left lung showed a voluminous and markedly edematous upper lobe, lower left lobe very nearly solid, and dark red on the cut surface The bronchi contained yellow pus The right lung showed the bronchi to be filled with muco-pus, and in the posterior part were limited areas of grayish-red consolidation, while the anterior portions were edematous

The aryteno-epiglottidean folds were distended with a clear serum so that the entrance to the larynx was practically closed The interior of the larynx was for the most part covered with a detachable fibrinous membrane extending down upon the commencement of the mucosa of the trachea, through the upper three rings of which passed an incision (tracheotomy) In places the false membrane was loosened and shreddy and the mucosa underneath showed superficial ulceration

The mucous membrane of tongue and pharynx showed no changes, tonsillar follicles contained yellowish plugs, right tonsil covered with a thin necrotic layer or fibrinous membrane

The entire mucous membrane of the esophagus was covered with an easily removable fibrinous membrane, of grayish color and about three millimeters in thickness The false membrane began near the upper limit of the esophagus, extending around the entire circumference of the latter, and ending irregularly near the cardiac



Esophagus

showed an irregular and notched margin. Bouillon became turbid, due to the presence of flakes and clumps that gradually settled on the bottom of the tube. Cultivations in bouillon containing a little rosolic acid showed the reaction to become first acid and, later, again alkaline. On potato there was no visible growth. On gelatin the bacillus developed very slowly. Stab and slant cultures on gelatin and on glycerin-agar showed the surface growth to be much better marked than that in the deeper parts of the media.

The bacilli stained with the ordinary anilin dyes and with Gram's method. Irregular forms and bacilli staining only at points were observed continually.

In order to test the virulence of the bacillus, 1 Cc. of a forty-eight-hour bouillon culture was injected into the abdominal wall of a guinea-pig weighing 420 grammes (December 7, 1895). Two days later the animal died, and the post-mortem showed an area of coagulation necrosis at the site of the inoculation from which the diphtheria bacillus was recovered in pure culture, the internal organs and the heart's blood were sterile, there were macroscopic areas of necrosis in the liver, and the adrenals were the seat of an extensive hemorrhagic infiltration. The same experiment was repeated, with the same gross result, in a second guinea-pig weighing 380 grammes, this animal dying at the end of thirty hours, and at the post-mortem the site of the inoculation could not be determined because there was no large district of necrosis.

Histological Examination. Sections were prepared from the esophagus, the posterior mediastinal lymph-glands, the lung, and the kidney, after hardening in alcohol.

The mucous surface of the esophagus was covered with a thick fibrinous layer in or under which the epithelial lining seemed completely absent, so that in the very large number of sections not a single epithelial cell nor recognizable remnant of one was seen. In sections stained by Weigert's fibrin method the fibrinous deposit presented first, a superficial layer composed of a more or less imperfect network of quite fine threads, secondly, a central layer composed of very deeply stained, irregular, clumpy masses, and thirdly, a deeper layer of a fine, fibrinous network, the threads of which could be readily followed down among the cells of the mucous membrane proper. Entangled in the meshes of the fibrinous layer were small cells with irregular and fragmented nuclei, clumpy masses of varying size, granular debris, and in the superficial parts especially were numerous bacilli of irregular shape and varying size and also occasional cocci. In the mucous and sub-

mucous layers were districts of leucocytic infiltration the vessels were well filled with blood and in the lymphatics were found granular masses and nuclear fragments. The muscular and external coats showed very many well filled blood vessels and occasional foci of leucocytic accumulations.

The most striking appearance in the sections of the posterior mediastinal lymph gland was the cell necrosis. In the areas so affected the nuclei did not stain and the cell outlines were indistinct, the cell bodies being faint and granular. Under a high power, black granules like dust particles and larger chromatin masses of irregular shape were found throughout the necrotic districts.

The characteristic appearances of a bronchitis with lobular pneumonia were present in the lungs.

The epithelium lining the convoluted tubules of the kidneys was somewhat granular, the lumen of the tubules being filled with granular material. The glomeruli did not show any acute inflammatory changes.

The clinical history and the anatomical findings establish positively the diagnosis of typhoid fever. The failure to cultivate the typhoid bacillus from the organs of the body may be attributed to the great length of time—ninety six hours—that intervened between the death of the patient and the post mortem, during which time the saprophytic organism that developed in the cultures gained entrance into the tissues, the growth of these saprophytes may also have depended upon accidental contamination or imperfect sterilization of the media used, but this is not very probable. At any rate the isolation of virulent diphtheria bacilli from the esophagus was accomplished without any difficulty. It might also be suggested that the infection with the diphtheria bacillus and consequent general diphtheritic intoxication exerted a harmful influence upon the life of the typhoid bacillus.¹ Death occurred quite late in the course of the typhoid fever, and it is possible that the typhoid bacillus might already have been largely eliminated from the body.

The extensive involvement of the esophagus in the diphtheritic process merits a few remarks. Diphtheria of the esophagus is unusual. Very many of the cases described in the literature are evident instances of a secondary infection with diphtheria in the

¹ Experiments were made by inoculating bouillon tubes with diphtheria and typhoid bacilli at the same time and then making plates at varying intervals. The two germs appeared capable of symbiosis, but the experiments were not carried out with such nicety as to determine positively less evident degrees of modifications of virulence or cultural characteristics.

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THE TREATMENT OF TYPHOID FEVER

BY GEORGE DUFFIELD M.D.

Attending Physician at Harper Hospital Clinical Professor of Medicine in the Detroit College of Medicine

At the beginning of my three months of service at Harper Hospital, in October, 1895, I resolved to try Dr Woodbridge's method of treating typhoid fever, as it appeared reasonable in theory and had proved satisfactory in his hands.

Before speaking of this treatment in detail let me call attention to some of the pathological conditions with which we have to deal. In common with most pathologists we regard the Eberth bacillus as the cause of typhoid fever. Uffelmann has investigated the resistance of typhoid bacilli by drying and their transmission in the air. Various materials after sterilization were saturated with water containing typhoid bacilli. The experiments showed that these organisms resist drying, and retain their power of development in earth twenty one days, in white sand eighty two days, in house and street sweepings thirty days, and on linen from sixty to seventy two days. In a warm, moist atmosphere the duration was longer.

Sarnelli, of Rome, has studied the relation between typhoid virus and human and experimental typhoid fever, which, he says, "is not primarily an intestinal infection." From a series of experiments on guinea pigs he concludes that Eberth's bacillus, after penetrating the organism, produces a toxin which exerts its force upon the nervous centres, causing death in the lower animals, acting upon the mucous membrane of the intestine, it gives rise to the familiar ulceration in the solitary glands, all of the symptoms presenting a close analogy to those of typhoid in the human being. In experimental typhoid, Eberth's bacillus is not frequently found in the intestinal contents, this fact militates against the idea that the disease is an infectious process localized in the intestine. The absence of Eberth's bacillus from the intestine of the animals thus inoculated is to be explained by two circumstances: first, that typhoid fever is an affection of the lymphatic system only; secondly, that, directly the poison begins to act on the intestinal walls, the colon bacteria become pathogenic and increase so enormously as to assimilate all other forms. The colon bacteria are supposed to constitute the first cause of secondary infections.

The lesions of typhoid fever are generally divided into two groups—those characteristic of the disease, and the secondary changes in the tissue that result from the long continued fever.

course of grave general infectious diseases or diseases accompanied with an exhausting cachexia Wagner¹ says that diphtheritic esophagitis is very often secondary to acute or chronic diseases such as typhoid fever, cholera, smallpox, carcinoma, tuberculosis, Bright's disease, and the like. The same statement is made by nearly all systematic writers, such as Zenkwand, von Ziemssen,² Orth,³ Jacobi,⁴ Osler,⁵ Strumpel,⁶ Lange,⁷ Pepper,⁸ Birch-Hirschfeld,⁹ and others.

In the case of typhoid fever complicated by diphtheria, described by Holst,¹⁰ the entire esophagus was covered by fibrinous membrane. In Jacobi's¹⁰ case there was a "fibrinous exudation" beginning in the pharynx and filling the whole of the esophagus and the cardiac end of the stomach.

Case 2—The following case occurred in the practice of Dr Herrick, to whom I am indebted for the facts.

On Nov 13, 1894, Dr Herrick was called to see J C J——, a coal-teamster. The patient had been suffering from severe headache, dizziness, weakness, anorexia, sleeplessness, and some vomiting, for about one week. Nov 12 he went to bed. At the time of the visit he had a flushed face, coated tongue, slightly tympanitic abdomen, enlarged spleen, rose spots, the temperature was 104°. He complained of sore throat, but examination of the pharynx revealed only a general redness of the tonsils and the soft palate. On Nov 13 he was admitted to Dr Herrick's service in the Cook County Hospital. Two days later, the typhoid symptoms still persisting, there was a grayish-white exudate over the tonsils and soft palate. A bacteriological examination confirmed the diagnosis of diphtheria. Three days later he died. The autopsy revealed typical lesions of typhoid fever in the intestines, the spleen, and the mesenteric glands, and in the throat was a true diphtheritic exudate.

In this case the infection with the diphtheria bacillus would seem to have occurred soon after the beginning of the typhoid fever, death occurring at about the end of the second week of the fever.

¹ "Beitr. zur Path. Anat. des Oesophagus," *Archiv für Heilkunde*, v, 449, 1860.

² Ziemssen's *Cyclopedia*, vol. vii, 1878, p. 144.

³ *Lehrbuch der Sp. Path. Anat.*, bd. 1, 1887, p. 680.

⁴ *Loc. cit.*

⁵ *Practice of Medicine*, 1893, p. 339.

⁶ *Text-book of Medicine*, 1892, p. 338.

⁷ *Fordöielsenorganernes Path. Anatomie*, 1890, heft 1, p. 95.

⁸ *American Text-book of Medicine*, vol. 1, 1893, p. 91, and vol. 11, 1894, p. 721.

⁹ *Lehrb. der Path. Anatomie*, 1895, ii, p. 613.

¹⁰ *Loc. cit.*

This formula, and also formula No 1, should be given as freely as possible at first, then gradually reducing the size and frequency of the doses, the object being to so regulate them as to allow the movements of the bowels to become less and less frequent until the temperature has dropped to normal, when the movements will have been reduced to one or two each day. Should symptoms of ptialism (a wholly unnecessary complication) supervene, the tablets should be promptly discontinued for a day or two, and, if necessary, sodium or potassium chlorate given returning as soon as possible to formulas Nos 1 and 2. About the fourth or fifth day of treatment the soft elastic capsules should be commenced

NO 3

Gualacol carbonate	...	...	...	...	3 grains.
Thymol	...	...	...	...	1 grain
Menthol	...	...	...	...	½ grain
Eucalyptol	...	...	...	...	5 minims.

one capsule to be given every three or four hours, alternating with the tablets

During all the course of treatment the patient must wash down each dose of medicine with large draughts of distilled or sterilized water, or, if indicated, some good laxative or diuretic mineral water

Note the physiological actions of the medicines used by Dr Woodbridge

Podophyllum is a slow cathartic and in minute doses a laxative which acts upon the liver and intestinal glands, increasing secretion. Neuberger concludes after a series of experiments, that it acts simply as an irritant exciting catharsis in its elimination by the intestinal glands

The physiological action of calomel is well known. It affects principally the excretory glands in the lower part of the small intestine and the upper part of the colon. It is supposed that calomel is changed by the action of the hydrochloric acid of the stomach into the corrosive chloride, when it acts as an hepatic stimulant and cholagogue. Calomel acts also as a stimulant to the kidneys, and is useful in increasing the diuretic action of such drugs as squill and digitalis. It has an antiseptic action in the intestines, retarding decomposition, which power it retains in the presence of fecal matter, which accounts for the beneficial action of this drug in intestinal diseases due to micro-organisms. It is claimed (Langlois) that calomel limits the absorptive activity of the intestinal wall

In guaiacol carbonate we have an excellent antiseptic. Wood

The characteristic post-mortem changes are seen in the lymphatic glands of the intestine, the mesentery, and the spleen. The alterations are divided into four stages (1) stage of infiltration, (2) stage of necrosis, (3) stage of ulceration, (4) stage of cicatrization. These pathological conditions are undoubtedly caused by the action of the bacilli upon the structure of the intestine. The separate stages are not necessarily chronological in the order of their development, but one, two, or even all three stages may be present in one Peyer's patch, and other glands may be found illustrating two or more stages.

The secondary infection of the mesenteric glands, especially near that portion of the bowel most affected, is undoubtedly caused by pathogenic bacterial absorption. Glands in other parts of the body are often enlarged and show on section bacterial infection.

The blood is vitiated, the white blood-corpuscle is destroyed, and the whole body suffers from constitutional infection, due to the long-continued fever, absorption of toxins, and destruction of blood-corpuscles.

In the Woodbridge treatment we have a well devised attempt to employ antiseptic methods which have yielded such brilliant results in surgery. We no longer hear of "laudable pus," but on the contrary it is now regarded as an avoidable evil. Intestinal antiseptics is the corner-stone of this treatment, and under Dr Woodbridge's method it is pushed to an extreme limit. According to the Doctor, three formulas are employed. The first consists of

NO 1

Podophyllum resin	..	1-960 grain
Mercurous chloride, mild	..	1-16 grain
Guaiacol carbonate	..	1-16 grain
Menthol ..	..	1-16 grain
Eucalyptol	..	q s

and should be given every fifteen minutes during the first twenty-four hours, and oftener if necessary during the second twenty-four, until not less than five or six free evacuations of the bowels are secured during each of two consecutive days.

On the third or fourth day of treatment the following tablet is to be given at intervals of one and two hours.

NO 2

Podophyllum resin	..	1-960 grain
Mercurous chloride, mild	..	1-16 grain
Guaiacol carbonate	----	1-4 grain
Menthol		1-16 grain
Thymol		1-16 grain
Eucalyptol	..	q s

This formula, and also formula No 1, should be given as freely as possible at first, then gradually reducing the size and frequency of the doses, the object being to so regulate them as to allow the movements of the bowels to become less and less frequent until the temperature has dropped to normal, when the movements will have been reduced to one or two each day. Should symptoms of ptyalism (a wholly unnecessary complication) supervene, the tablets should be promptly discontinued for a day or two, and, if necessary, sodium or potassium chlorate given, returning as soon as possible to formulas Nos 1 and 2. About the fourth or fifth day of treatment the soft elastic capsules should be commenced.

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The characteristic post-mortem changes are seen in the lymphatic glands of the intestine, the mesentery, and the spleen. The alterations are divided into four stages (1) stage of infiltration, (2) stage of necrosis, (3) stage of ulceration, (4) stage of cicatrization. These pathological conditions are undoubtedly caused by the action of the bacilli upon the structure of the intestine. The separate stages are not necessarily chronological in the order of their development, but one, two, or even all three stages may be present in one Peyer's patch, and other glands may be found illustrating two or more stages.

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The blood is vitiated, the white blood-corpuscle is destroyed, and the whole body suffers from constitutional infection, due to the long-continued fever, absorption of toxins, and destruction of blood-corpuscles.

In the Woodbridge treatment we have a well devised attempt to employ antiseptic methods which have yielded such brilliant results in surgery. We no longer hear of "laudable pus," but on the contrary it is now regarded as an avoidable evil. Intestinal antiseptics is the corner-stone of this treatment, and under Dr Woodbridge's method it is pushed to an extreme limit. According to the Doctor, three formulas are employed. The first consists of

NO 1

Podophyllum resin	..	1-960 grain
Mercurous chloride, mild		1-16 grain
Guaiacol carbonate	..	1-16 grain
Menthol ..		1-16 grain
Eucalyptol		.. q s

and should be given every fifteen minutes during the first twenty-four hours, and oftener if necessary during the second twenty-four, until not less than five or six free evacuations of the bowels are secured during each of two consecutive days.

On the third or fourth day of treatment the following tablet is to be given at intervals of one and two hours.

NO 2

Podophyllum resin	..	1-960 grain
Mercurous chloride, mild		1-16 grain
Guaiacol carbonate	.. ..	1-4 grain
Menthol		1 16 grain
Thymol		1-16 grain
Eucalyptol		q s

mentation (Pepper and Murchison) Bartlett compares them to new cider, others to pea soup in color and consistency

It is to be regretted that the stools of the cases that we will later describe were not examined for the Eberth bacillus, but the clinical phenomena were sufficiently marked to justify a diagnosis which was based upon the following symptoms All the cases but three were sick from one to three weeks before entering the hospital, tympanites, with pain and gurgling in right iliac fossa furred and coated tongue, with musty and semi cadaveric odor from mouth—the edges and tips of tongue were usually red in the beginning, while later that organ cleared off and became red, glazed, dry, or fissured, or it became dry with the formation of brownish crusts, the gums and teeth showing sordes, diarrhea usually developed at the end of the first week, varying from a light yellow-ochre, and extremely offensive, to a dark bloody or even blackish appearance, enlargement of the spleen, with tenderness on pressure Most of these symptoms were noted on the first examination in nearly all the cases, rose spots over lower part of thorax and chest were present in all but one case and were looked upon as the final proof of the typhoid state

In the care of the cases of typhoid fever during 1893, the anti pyretics acetanilid and phenacetin were given when the temperature rose to 102.5° or 103° Salol was also given for its carbolic acid anti fermentative effect in the intestinal tube The former anti pyretics, even in small doses produced great depression of the heart, and the longer they were continued the more susceptible were the patients to the depressant action, with a consequent lessening of the antipyretic effect

Plunge baths were given an effectual trial, but they did not produce the brilliant results claimed by Brand It is so laborious a method that it seemed impracticable, tiring out the nurses and attendants, to say nothing of the exhaustion of the patients We have had better results from sponging when the temperature has been 103° or over Sponging with alcohol and water has been used with the Woodbridge method, and has proved successful, relieving patients without causing the chills or cyanosis that so frequently followed the plunge bath

The first series of charts numbered 14, 16, and 18 chronicle the fever curve in cases that were treated by bathing and anti pyretics with the one aim uppermost to reduce the temperature The average duration of fever in these cases was 61 days as against $13\frac{1}{2}$ days by the Woodbridge method

tar creosote is chiefly composed of guaiacol, creosol, menthol-creosol, and phloral, the guaiacol being present in the proportion of 60 to 90 per cent. Guaiacol is colorless, sparingly soluble in water, freely soluble in ether and alcohol, and is more agreeable to the taste and better borne than creosote. It has a special sedative action upon the nerves of the stomach, allays irritability and nausea, and checks fermentation in stomach and intestine. It is useful in diarrhea dependent upon bacterial fermentative processes in the intestines, and its action as an antipyretic is more rapid than that of sulphate of quinine (Robilliard). It is a powerful antipyretic (Friedenwald and Haylen) when locally applied, and is readily absorbed by the skin. It should be mixed with equal parts of glycerin and pure olive oil and painted on the skin over an area not to exceed 20 square inches, this to be covered with an impermeable dressing.

Menthol, a crystalline solid, with a sharp and pungent taste, has decided germicidal properties and is recommended as an intestinal antiseptic, though it is more frequently used as a topical remedy.

Eucalyptol excites the flow of saliva, produces a sense of warmth in the stomach, and acts as a carminative and antiseptic. The gastric and intestinal juices are increased by it, it is well borne by the stomach, and is decomposed in the intestine into hydrochloric acid. The excretion of urea is augmented and the action of the heart increased by eucalyptol, which is also an efficient antiseptic, minute quantities preventing putrefaction, though not checking the action of the digestive ferments. Shoemaker, in his latest work on materia medica and therapeutics, says "Eucalyptol exerts a decided antiseptic action upon the bowel, it is appropriate in the treatment of diseases involving the intestine, such as enteritis, typhoid fever, the green diarrhea of children, etc."

Thymol is a valuable antiseptic. It is less powerful than carbolic acid, but is less poisonous and much less irritating. It is a powerful disinfectant and at the same time lowers arterial tension, lessens reflex action, and reduces temperature.

The first action of these remedies is to cause a flow of bile into the intestine, which emulsifies neutral fats, promotes osmosis, excites contraction of the muscular coats of the intestine, and prevents putrefactive decomposition of the intestinal contents (Langlois).

The stools of typhoid fever are fetid, ammoniacal, and alkaline in reaction, usually liquid, of a yellow-ochre color, often pultaceous, frothy, and so light as to float upon water, exhibiting bacterial fer-

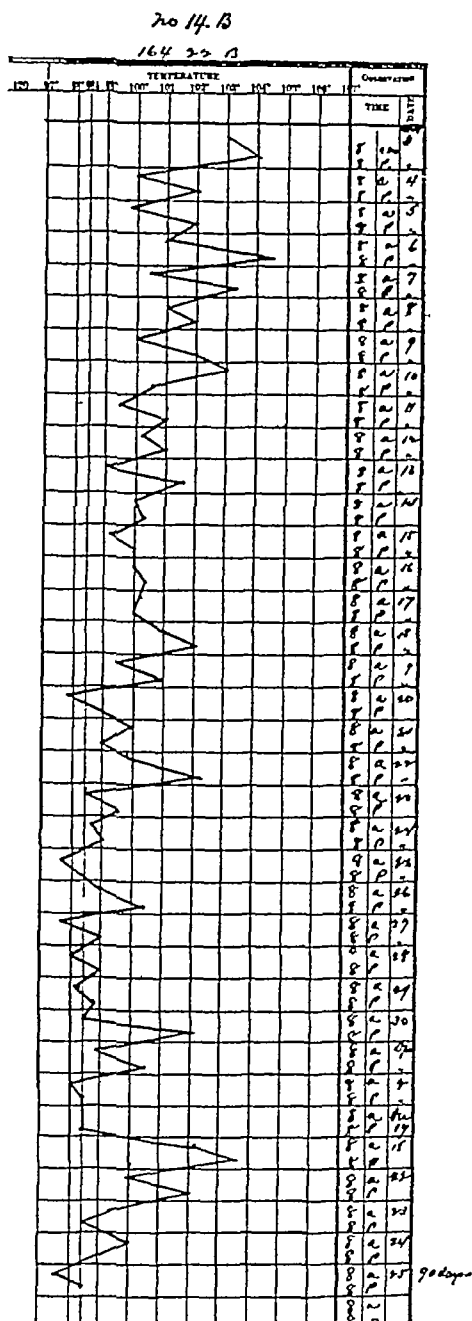
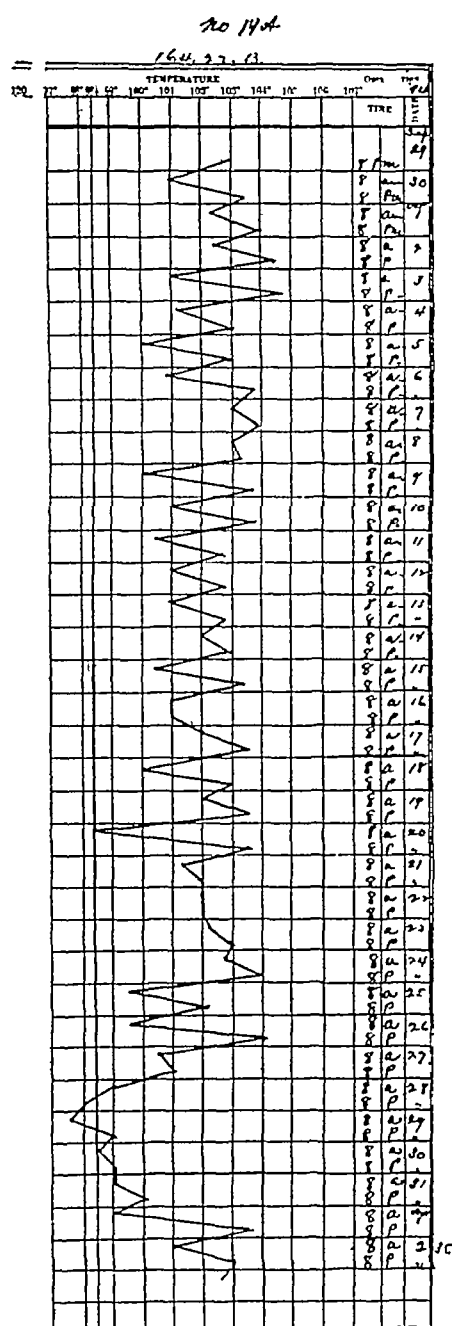
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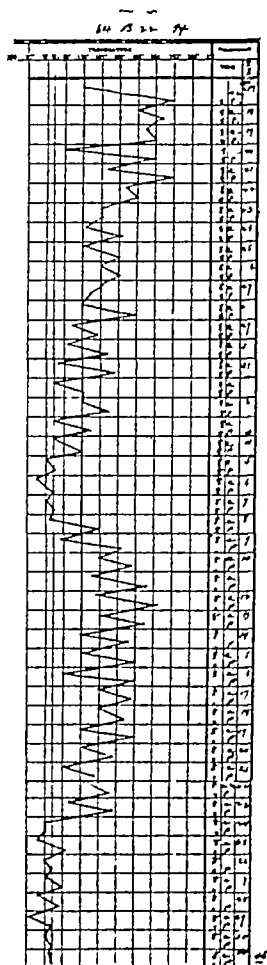
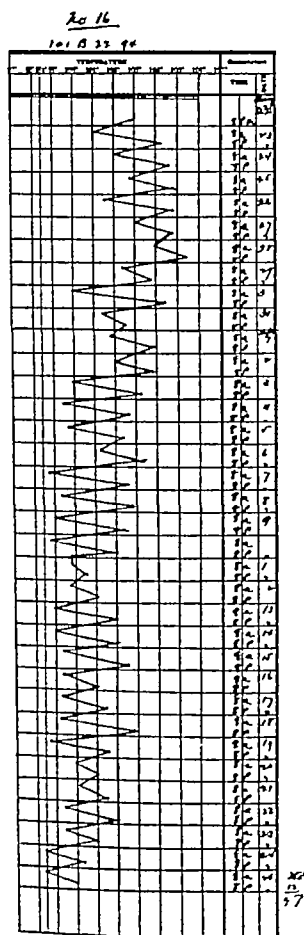
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The first series of charts, numbered 14, 16, and 18, chronicle the fever curve in cases that were treated by bathing and anti pyretics with the one aim uppermost to reduce the temperature. The average duration of fever in these cases was 61 days as against 131½ days by the Woodbridge method.



By reference to chart No 14 it will be observed that the fever persisted for ninety days. It was a severe continued fever. On the twenty-second day the morning temperature touched normal, only to rise by evening to 103.6° . Seven days thereafter it fell again, and on the thirtieth day went one degree below normal, but



soon rose again, and continued above normal with irregular rise and fall for many days before reaching and remaining at the normal point. Plunge baths, salol and acetanilid (three grams of each) internally was the chief medication, five or six such doses in each

twenty-four hours. Rarely was the temperature reduced more than one or one and a half degrees after the bath, and it soon rose again. The pulse was weak and compressible, ranging between 116 and 136. Stimulants were given every two or three hours during the course of the disease. Forty-five plunge baths were given—or whenever the temperature reached 102.5° the patients were immersed in water of about 90° , which was rapidly cooled to 65° .

In case 16 the morning temperature did not reach normal until the thirty-fourth day (see chart on preceding page). Twelve days after the chart closes, the temperature remained between 100° and 101° —or forty-seven days of continued fever and a total hospital detention of over sixty days.

Case 18 was twenty-three days in hospital before temperature reached normal, then a marked relapse occurred and twenty-one days more of fever followed before normal temperature was again reached.

Plates Nos. 14, 16 and 18 show the long curves of typhoid fever when antipyretics and the Brand methods were used to reduce the temperature. Compare these plates with those that follow, showing the abortive treatment of typhoid by the Woodbridge method.

I will now call your attention to a series of thirteen cases that were under my care from October 1 to December 31, 1895, in which the Woodbridge method was used exclusively. In all the cases it proved satisfactory, shortening the disease and lowering temperature. In all cases when the temperature reached 103° a sponge bath was ordered, as it gave relief and quieted restless patients. These were rarely required after the fourth or fifth day, because of the rapid reduction of the fever.

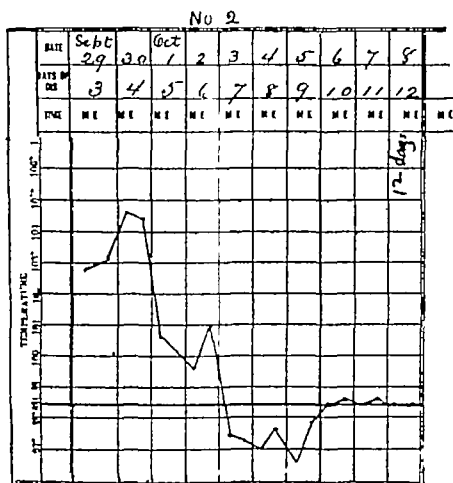
These thirteen cases are reported very briefly, as they were all treated similarly. The cases are given as they appeared in the hospital. They are not selected, but are all the cases that came under my care while I was on duty.

Case No	Continuance of Fever	Case No	Continuance of Fever	Case No	Continuance of Fever
1	17 days	6	12 days	11	16 days
2	5 days	7	14 days	12	18 days
3	23 days	8	15 days	13	12 days
4	7 days	9	15 days		
5	13 days	10	8 days		176 days

It will thus be seen that the average duration of treatment was $13\frac{7}{8}$ days.

As a fair example of the whole, charts Nos 2, 4, 10 and 13 are submitted herewith

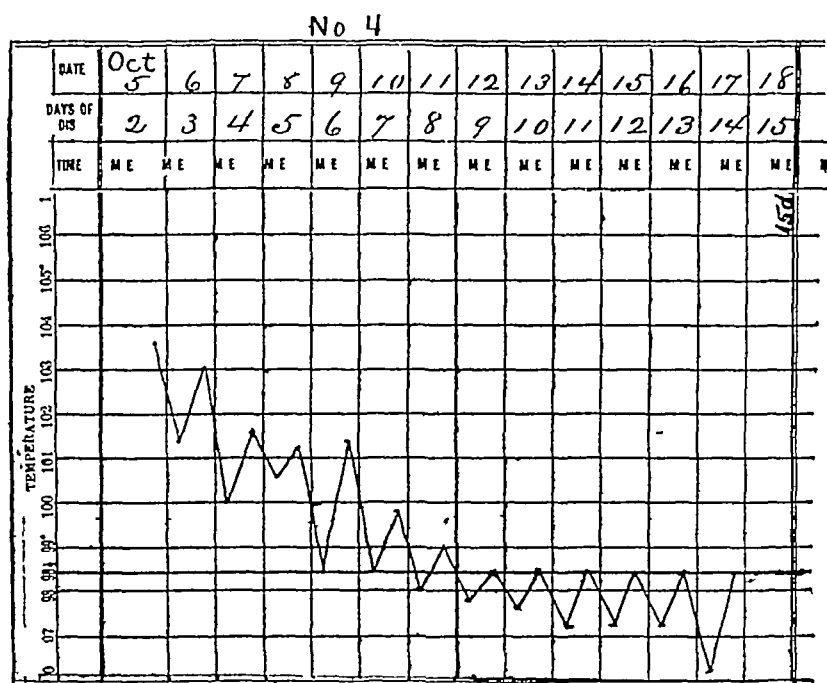
Case No 2 (see chart) showed a very decided and rapid fall after being under treatment for two days. Temperature was sub-normal for three days, after which it remained normal. Patient had been sick three or four days before entering the hospital



No 3 had been recently confined, and it was thought the puerperal state might have affected the fever, which was very high during the first week. It was a bad case from the start, and proved the good effect of the treatment that was being tried—for after the first week the temperature fell and remained below 103° , only touching that point twice during the week and once during the following week. She was very delirious in the first week, and it was thought she might die—in fact, we felt that with any other treatment she certainly would have died—but she made a good recovery and was discharged well. Her temperature, Oct 3, at 8 A.M., was 103° , at 4 P.M., 104.4° , at midnight, 104° . Oct 4—8 A.M., 104° , 12 noon, 104.2° , 4 P.M., 105.2° , midnight, 104.4° . Oct 5—8 A.M., 103° , midnight, 104.2° . Oct 6—2 A.M., 104° , 4 A.M., 103.6° , 12 noon, 104.2° , 4 P.M., 105.8° , 8 P.M. and 12 midnight, 105° . Oct 7—4 A.M., 105° , 12 noon, 104° , 4 P.M., 105° , 8 P.M.

105.4° Five plunge baths, thirteen sponge baths, and three cold packs were given during the week

No 4 was seen early, and the clinical symptoms were plain. The medicines acted promptly and with gratifying results, the sub-normal temperature lasting one week, with the evening temperature rising to normal. This peculiarity is especially to be noted.



No 5 was another "aborted case"—after the fourth day the temperature was normal, and it did not rise again above 100°. This case was practically well in five days, though the evening temperature rose one-half a degree above normal for six days more, with morning temperature normal.

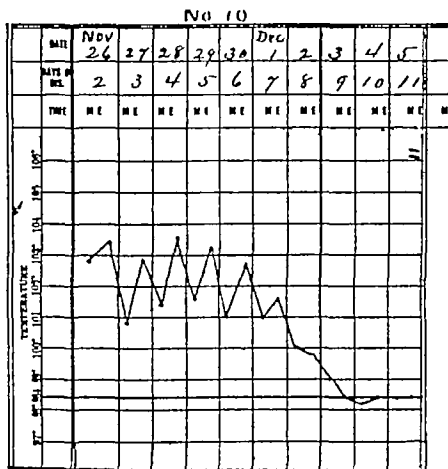
No 6 showed the evening temperature on the fourth day falling instead of rising, and by the thirteenth day remaining normal.

No 7 entered the hospital in a collapsed condition, having been sick about seven days. On the fifth day of treatment the temperature fell, remaining below 101° for two days, and then falling to normal in the morning and 100° in the evening for five or six days, when it remained at normal and convalescence progressed rapidly.

No 8 showed marked hebetude from the beginning, and had to be roused for every dose of medicine and for food, the temperature never rose above 102°. He made a good recovery, the temperature

reaching normal in fifteen days. He had several hemorrhages during the fever and several successive crops of rose spots.

No 9 suffered a relapse after having been up for a week, the primary attack having lasted three weeks. The former attack had not been treated by the Woodbridge method. The temperature did not show a marked decline until the seventh day, it would probably have remained normal on the ninth or tenth day, but the gums had become soft and painful—due to too much mercury.

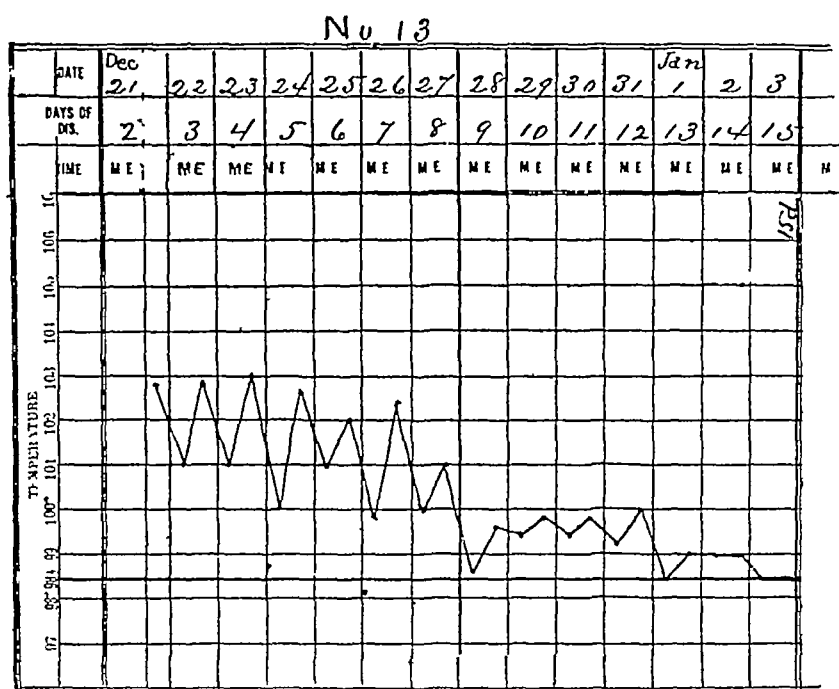


No 10—This case was seen in the beginning. Patient had been feeling miserably for several days, but was not sick enough to go to bed. The diagnosis having been early established, the Woodbridge method was pushed to see if the case could be aborted. There was a good deal of tenderness over iliac fossa, with gurgling and tympanites. The afternoon temperature kept falling from half a degree to a full degree each day after the patient had been thoroughly medicated. On the eighth day the temperature was normal, appetite returned, tongue cleared, and abdominal symptoms disappeared. The rose spots persisted for seven or ten days after the disappearance of the fever. The gums were slightly "touched" because of old specific disease.

No 11—On the eighth day the temperature fell from 102.6° to 100°, with a degree more for evening elevation. This case was the only one that showed no rose spots. The spleen was enlarged and

tender She had indigestion after taking the medicines, but made a good recovery in sixteen days

No 12 showed marked elevation and fall, on the eleventh day the temperature was much reduced, and on the eighteenth day was normal, where it remained



No 13 was a typical case On the sixth day there was a marked fall in temperature, which would probably have remained normal had the patient not suffered from ptialism Notwithstanding the salivation, the typhoid symptoms improved steadily, and he made a rapid recovery

In conclusion I wish to say that in my hands this treatment has worked most satisfactorily, shortening, aborting and greatly modifying the severe cases of typhoid fever There is no tendency to relapse, no unfavorable complications arise, and the bad effect of prolonged stimulation is done away with I found the plan a most successful one, and heartily commend it to my fellow practitioners

NOTE—I have used in the cases above reported the formulas as prepared by Parke, Davis & Co, in harmony with Dr Woodbridge's instructions Prescriptions Nos 1 and 2 are tablets, and No 3 is issued as a soft elastic capsule These are easy to administer, accurate, and reliable ¹

¹ Since this paper was written, Messrs. Parke, Davis & Co have added to their list two formulas intended for children under ten years of age These formulas are a slight modification of the three originally prepared by Dr Woodbridge

BRAIN SURGERY, WITH REPORT OF CASES

BY PAUL F. EVE, M.D., NASHVILLE, TENN.

In the great advance of surgery, there is no department in which mightier strides have been made than in the exploration and operative procedures of the brain. Like the Dark Continent, it lay upon the surgical chart, unexplored and seemingly impenetrable, there being about it a certain mysterious something which struck the surgeon with awe, and commanded the boldest, "Hands off!" Occasionally, from the many accidents to which the brain was subject, we became slightly acquainted with this portion of the human anatomy, and marveled at some of the recoveries which took place when hope had been abandoned. Quoting from Gross, we read "Injuries of the head have always been objects of the deepest interest and study with the surgeon. Independently of the frequency of their occurrence, they merit the greatest attention on account of the obscurity of their diagnosis, the stealthy character of their progress, the difficulty of their management, and the uncertainty of their termination."

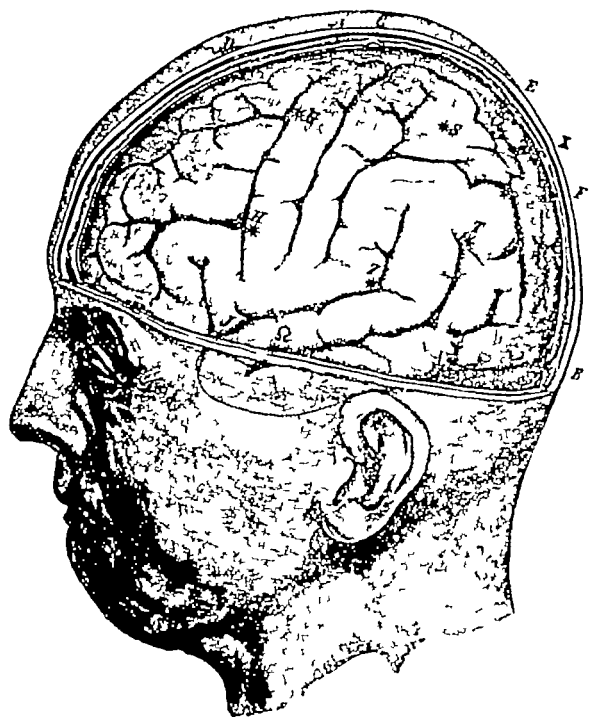
It was long ago remarked by Mr. Pott, and the observation has been verified a thousand times since, that there is no lesion of the head so trifling, on the one hand, as not to endanger life, or so severe on the other, that it may not be followed by recovery. True, the operation of trephining has been practiced for a long time, yet until recently (since the era of antiseptic surgery) its results have not been flattering, in the hospitals of Paris and Vienna the operation was nearly always fatal, in London, Dublin, Edinburgh, Glasgow, and other large cities of Great Britain, the mortality, though very high, was much less, while in the United States the number of recoveries in proportion to the number of deaths was, as nearly as can be computed, one to four. Almost every case of brain abscess terminated fatally, and the results from extravasation of blood and hemorrhage followed about the same course.

As to the topography of the brain cortex, nothing was known, with the exception of a few centres, as that of sight, hearing, etc., all was a blank. Up to ten years ago the skull was regarded as a region so dangerous that Dante's motto might have been accepted as an appropriate warning, "All hope abandon, ye who enter here." But, thanks to such men as Broca of France, Goltz and Fritsch of Germany, Ferrier and Horsley of England, darkness and mystery have been dissipated, so that we may say a new department in sur-

of the sagittal meridian, and at any angle From the point midway between the crista glabellæ and the occipital protuberance (the upper pole of the sagittal meridian, point C) we draw two oblique meridians, each at an angle of 60° , running forwards and backwards, respectively (anterior line C G H J, and posterior line C S T V, oblique meridian) A third line is more complicated For its construction the sagittal meridian is divided into three parts (anterior point D, and posterior point E, third point of the sagittal meridian) The posterior half of the sagittal meridian is divided into two equal parts (posterior fourth point, point F) From the centre (point X) between the posterior fourth point and the posterior third point extends an oblique line, X Y Z Ω , the movable spring strip being applied here to the surface of the head At the temple it intersects the equatorial line about one centimeter behind the oblique anterior meridian The two oblique meridians and the oblique line are each divided into three equal parts, and thus we obtain a sufficient number of definite points for localization on the surface of the brain "

He has demonstrated on a large number of brains the points of the cerebral cortex which correspond to the above-mentioned points on the surface of the head, and is convinced that he has thus been put in possession of the main areas whose function is known and whose location comes in question on the living patient The equatorial line corresponds to the greatest horizontal circumference of the brain In front, at A, it coincides with the anterior pole of the frontal lobe, behind, at B, it lies nearly one centimeter below the posterior pole of the occipital lobe, and laterally it passes over the temporal lobe The point of intersection of the equatorial line by the anterior oblique meridian (J) is situated on the pterion (the junction of the frontal, sphenoidal, temporal, and parietal bones), and on the brain at the anterior end of the fissure of Sylvius, where the horizontal ramus of this sp^{irit} ^{ends} into the anterior ascending on^{ion} ^{of} it designates the ^{junction} between the frontal and the ^{anterior} The intersec^{tion} ^{of} the posterior oblique meridian, ^{at} al line at V, ^{is} it between the temporal ^{lobe} ^{and} the occipital lobe, ^{about} ^{one} centimeter below ^{the} ^{equatorial} ^{line} ^{at} ^{the} ^{occipital} ^{pole} ^{of} ^{the} ^{brain} ^{is} ^{located} ^{on} ^{the} ^{surface} ^{of} ^{the} ^{head} ^{at} ^{the} ^{point} ^{where} ^{the} ^{equatorial} ^{line} ^{intersects} ^{the} ^{anterior} ^{oblique} ^{meridian} ^{at} ^{the} ^{point} ^J ^{is} ^{situated} ^{on} ^{the} ^{pterion} ^{(the} ^{junction} ^{of} ^{the} ^{frontal} [,] ^{sphenoidal} [,] ^{temporal} [,] ^{and} ^{parietal} ^{bones)} ^{,,} ^{and} ^{on} ^{the} ^{brain} ^{at} ^{the} ^{anterior} ^{end} ^{of} ^{the} ^{fissure} ^{of} ^{Sylvius} ^{,,} ^{where} ^{the} ^{horizontal} ^{ramus} ^{of} ^{this} ^{sp^{irit}} ^{ends} ^{into} ^{the} ^{anterior} ^{ascending} ^{on^{ion}} ^{of} ^{it} ^{designates} ^{the} ^{junction} ^{between} ^{the} ^{frontal} ^{and} ^{the} ^{anterior} ^{oblique} 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join the anterior central convolution. On the posterior oblique meridian the point S lies over the intra parietal sulcus in the upper parietal lobe, exactly above the supra marginal gyrus, the point T marks the posterior end of the first temporal fissure, and hence lies under the angular gyrus. X, the sagittal starting point of the



oblique line X Ω , corresponds to about the tip of the lambdoid suture on the skull, and the parieto occipital fissure of the brain, the point Y lies in the angular gyrus. Z in the posterior end of the horizontal portion of the fissure of Sylvius, the equatorial end of the oblique line (Ω) strikes the anterior end of the first temporal fissure. It will thus be seen that by these points all the motor and sensory centres thus far known have been marked.

In trephining for ligation of the middle meningeal artery a point is usually selected (Vogt) two fingers' breadth above the zygomatic arch and a thumb's breadth behind the zygomatic process of the frontal bone. This strikes the anterior branch. Should it be the posterior branch, the trephine opening must be made immediately over the middle of the zygomatic arch.

In concluding this article I desire to present a report of several cases that have come under my personal observation.

Case 1—Mr B F—, brakeman on railroad, came under observation and treatment for compound comminuted fracture of frontal bone and comminuted fracture of femur. He had been knocked off the top of a freight car by an overhead bridge. Condition at date of operation unfavorable, although every means had been used to counteract shock.

Operation was performed at hospital, July 22, 1889. The fragments of bone were driven in, and considerable force was necessary to detach a fragment for the purpose of removing the remaining ones. One of these fragments had been driven into the superior longitudinal sinus, and upon its removal considerable hemorrhage occurred. This was temporarily controlled by pressure of the finger over the opening, and the operation was rapidly completed. About a dessertspoonful of brain-substance escaped during operation. The rent in the dura mater was closed by catgut sutures, and the sinus packed with iodoform gauze. The area of bone removed in this operation was $3\frac{1}{4}$ by $1\frac{1}{4}$ inches.

The condition of the patient improving, on July 28 a plaster-of-paris dressing was placed upon the comminuted fracture of the thigh. The patient from the time of operation remained in a semi-conscious condition for twenty days and was almost unmanageable, although his temperature never exceeded 101° , pulse rapid, yet strong. On the seventh day a portion of gauze was removed, and on the fifteenth day the remainder was easily detached. After twenty days the patient improved rapidly, and was discharged entirely recovered, September 15, 1889.

Case 2—A D—, colored boy, 15 years old, received a compound comminuted fracture of both parietal bones, caused by a brick striking his head from an elevation of thirty feet.

Operation performed at hospital, April 14, 1891. After shaving and cleansing scalp, the opening was enlarged, and depressed bones elevated and removed. No symptoms of paralysis occurred before or during the operation—only those of depression following the shock. An area of three by four inches of depressed bone was

removed. One spicula had penetrated the superior longitudinal sinus, this, when removed, was followed by alarming hemorrhage and the patient sank rapidly. Hemorrhage was temporarily checked by placing a finger over opening, and operation completed. The opening in the sinus was packed with iodoform gauze, and the patient, in a very low condition placed in bed. Improvement was noted four hours later, and patient was found in good condition on the following morning. A portion of gauze packing was removed on April 21, and the remainder eight days later. At no time did the temperature read over 101.5° . Patient was discharged as cured May 26, 1891.

Case 3 —J M—, compound comminuted fracture of the skull, involving portions of the frontal and occipital bones. Received at the hospital September 29, 1893, and operated upon at that date.

After scalp had been shaved and cleansed, an incision was made over the fracture, commencing at frontal and ending at occipital bone. An area of bone $6\frac{1}{2}$ inches in length and from $2\frac{1}{2}$ to 3 inches in breadth was removed. The fracture was on the left side of the cranium, and there was complete paralysis of left upper and lower extremities. When fragments were removed, the dura mater was found to be torn into shreds for an extent of from $2\frac{1}{2}$ to 4 inches, and two or more openings communicating with the cerebral surface, from which exuded a dark grumous material mixed with cerebral substance. These openings were enlarged and a number of clots turned out, some of which were taken from the ascending frontal and first and second frontal convolutions. The wound was now cleansed as thoroughly as possible, and, finding the dura mater in such a condition that sutures could not be placed, a light gauze compress was introduced and the integument approximated. The patient made an uninterrupted recovery. Temperature was never over 100° . The gauze was removed on the tenth day, and the patient discharged on the fortieth day, with full use of extremities on left side.

Case 4 —E V—, deaf mute, received a stroke from a hod falling on his head. Admitted to hospital July 20, 1894, operation same day. Examination revealed a compound comminuted fracture of parts of frontal and parietal bones.

After shaving and cleansing scalp, an incision was made from frontal to occipital bone. After elevating and removing fragments, a large rent was found in the dura mater over ascending frontal and first and second frontal convolutions. There was complete paralysis

dangerous collapse which exists during the process of withdrawing the drug

The treacherous and insidious character of cocaine results from the fact that when taken in small doses it produces at first apparently nothing but a slight degree of exaltation, a sense of well-being, a feeling of mental and bodily activity, of general satisfaction, and of good humor that is most agreeable. There is no mental confusion which the consumer of cocaine is conscious of, and the only overt symptom he betrays at this stage is a more than natural talkativeness. The hypnotic effects, when they appear, are not overwhelming, and there is no headache, no nausea, no confusion next day. Thus cocaine is probably the most agreeable of all narcotics, therefore the most dangerous and alluring. It is to be feared that these peculiar qualities may, indeed, conduce to raise this drug in the future to the bad eminence of being, as Erlenmeyer says, the third great scourge of the human race (alcohol and opium being the first and second). Like several other observers, I have satisfied myself by experiments on healthy persons, that the agreeable results described actually follow the ingestion of small doses of cocaine, and this fact impresses one strongly with the feeling of how seductive this drug would be to the neurotic or debilitated. Of course, as is the case with all narcotics, small doses soon lose their effect, and hence a rapid increase is necessary.

The rapidity with which mental symptoms of a grave character appear is remarkable in cases in which increasing quantities of cocaine are taken. Within three months marked indications of degeneration, loss of memory, hallucinations, and suspicion deepening into persecutory delusions, have been found.

The following is a characteristic clinical picture on the one side the cachexia or bodily ruin, on the other side the moral impairment and pronounced mental affection. Patients who use cocaine alone, and those who have endeavored to wean themselves from morphine by its aid, and so added cocainism to the morphine habit, appear marasmatic. The skin is of a pale yellowish, almost cadaveric, tint, and withered feel, the extremities are cool and covered with cold sweat. The eyes are deeply sunken, glistening, and surrounded by a dark ring, the pupils widely dilated. Appetite is lost, digestion disturbed. Salivation, with dryness of throat, may be complained of, and further, partial sensory disturbances or total analgesia. From the paralyzing action of cocaine upon the blood-vessels, patients complain of palpitation and breathlessness, troublesome sweating, and noises in the ears, and also syncopal attacks and

dyspnea. The pulse is more frequent and easily compressible. They suffer from a want which must be satisfied, they become nervous trembling, and fall into a wretched condition of neurasthenia.

Speech is disconnected and can scarcely be understood, impotence, and incontinence of urine may appear. Sleeplessness sets in early. One of the most characteristic effects of this habit is the occurrence of muscular twitching, tonic and clonic convulsions, and finally epileptic attacks, in which the patient may die. The mental symptoms may take the form of hallucinations usually of general sensation, but not infrequently of sight as well. General mental weakness may set in rather early to be observed in loss of memory and unusual prolixity in conversation and correspondence. When the drug is withdrawn, besides the vaso-motor symptoms there may be seen depression, impairment of will power, weeping, etc. The chronic form does not protect from acute intoxication.

It will be evident from this that crime of various degrees will most naturally follow the cocaine habit.

Several instances have been noted where cocaine has been associated with alcohol.

The use of cocaine impairs the power of judging of the nature of acts, and their natural relations. In one case a cocaine inebriate gave a suit of clothes to a friend, and the next day sued him for a loan of three dollars. Acts like this, devoid of judgment and reason, reveal an unstable brain—at one time suicidal or homicidal, then deliriously buoyant, generous and forgiving, or suspicious and dangerously revengeful, and at all times suddenly changing to the most opposite extremes of thought and conduct.

When alcohol or opium is associated with cocaine, still more complex and unexpected acts may follow. Crimes of a homicidal nature will be sudden and delirious. They may exhibit some forethought and design, but this will be transient and confined to a brief period preceding the act. Crimes against property will show the same delusive character, and exhibit cunning in the efforts at concealment. Kleptomania and pyromania are of this class. Clerks in stores who are found to be thieves, and particularly women, are in many instances both opium and cocaine takers.—An aggravated case of an old reliable man, found guilty of this form of crime, suffered from strange collapse in jail, due to the sudden withdrawal of the cocaine. This state associated with delirium, was thought by the medical man to be due to moral causes.—A man of repute, sentenced for life for pyromania, became insane in jail, and a year later recovered. He concealed the fact of opium and cocaine addiction. His

counsel knew of his opium craze, but failed to realize that his mind was impaired, for he was apparently sane during the trial, when he could secure opium, but when this was impossible his true condition appeared — In a trial for assault where the criminal was known to be a user of narcotic drugs, dating from an old injury during the late war, two physicians swore to his perfect sanity. He became maniacal after the trial, and later was pronounced demented, and is now in an asylum.

This central fact should never be lost sight of in these cases, namely, that the suddenness and impulsiveness of the crime is strong evidence of the insanity and mental incapacity of the actor. When the fact of using cocaine is established, the inference is certain that abnormal reasoning and strange conduct will follow. Crime is the natural result if favoring conditions combine.

Usually the fact of cocaine-using cannot be readily concealed when the drug is taken alone, but when combined with opium the emotional changes are not so pronounced. On the witness-stand a person addicted to cocaine is easily confused and uncertain concerning facts with which he should be familiar — A woman who witnessed an assault, and testified clearly to the facts, after using cocaine was made to swear to an exactly opposite state of facts. Later her testimony varied widely, and finally she was arrested for perjury, when her real condition appeared — A woman who was arrested for murder by poisoning, suicided in jail before the trial. The facts indicated that she had used cocaine for at least two years, and alternated it with laudanum. She was intensely garrulous at times, and suspicious of other women plotting to put her out of the way and then marry her husband. She was treated by the family physician for hysteria, and the fact of opium-taking was not known. She gave a poisonous dose of morphine to a woman, and when the result was evidently fatal did all she could to save her, and asserted that the victim was a morphine-taker. The extreme emotional disturbance manifest at this time was found to be due to cocainism. It was also found that on several occasions her husband, and several women who were visiting at her home at different times, all suffered from sudden severe attacks of nausea, vomiting, and extreme prostration, during which she displayed the greatest tenderness and solicitude for their recovery. In all probability she suffered from homicidal delusions after using cocaine, and turned to laudanum for relief. It also appeared that she used large doses of cocaine at the menstrual periods, and between these periods depended on opium.

In any disputed case, if the fact can be established that cocaine was used continuously in large or small doses before the crime was committed, a very thorough inquiry should be made. A search for delusions, hallucinations and transient deliriums should also follow. A suspected cocaine taker, in jail for supposed barn burning was given cocaine and studied closely by a physician very marked delusions appeared, with hallucinations of voices and confused, delirious conceptions. After the effects of the drug passed away he became secretive and refused to talk or explain his conduct.

Impulsive manias of fear of death, injury, or intrigue, are common. Such persons will carry revolvers or loaded canes, or spend a great deal of time visiting and explaining unimportant matters. Fears of false criticism of mistakes, and of injuries at the hands of others, cause constant alarm and efforts to avoid these imaginary dangers.

Social, sexual and emotional matters often assume suspicious prominence in a case not previously noted in this way. Unusual and extraordinary conduct always indicates some disturbing cause, which may be ascertained particularly if it is from narcotic drugs.

It is doubtful in cocaine takers, if any unusual influences or criminal designs can be brought to force them to commit criminal acts, yet it is possible that delusions may be fostered and increased to such an extent that crime may follow. This would, however seem to be a rare occurrence. The transient nature of all mental operations, and their superficiality, would oppose any persistent thought or act. The crime or wrong committed would follow at once the thought, or be forgotten. An act committed in a moment of sudden impulse may so startle the actor, by a horror of the consequences, that the paralysis of the drug will be broken up, and suicide follow. This was the case (no doubt) in an instance where a cocaine using physician inflicted a ghastly wound on a patient in his office. An altercation began over some bill, and the doctor struck down his victim with a knife. Then, as if realizing his crime he uttered a wild cry, rushed out to a river near by, and drowned himself. A similar instance was that of a cocaine-taker who threw a man down stairs, and, hearing a despairing cry from a witness that the man was killed, went back and shot himself but recovered, and stoutly denied all knowledge or memory of the act. This was probably true but the court convicted him.

In a recent case of a disputed will, the fact was brought out that the testator had displayed loquaciousness, with great uncertainty and indecisiveness of thought. Naturally he was a great

talker and writer, but this increased. His correspondence grew to an enormous extent. Three clerks were busy writing all day. One letter suggested another, and one topic followed another indefinitely. Every thought was well expressed, but came to no end. He wrote forty pages to his partner to advise the payment of a doubtful claim. His legal adviser received so many letters that he could not read them and attend to other business. In conversation his thoughts ran on in a continuous, steady stream of vague dreamy ideas. Later he showed some delusions of mental power, and claimed he had peculiar clairvoyant perceptions of motives of others. It was in evidence that he purchased large quantities of spirits, although at no time was there evidence of alcoholic intoxication. Also that he had bought secretly quantities of cocaine. He died from some obscure form of heart disease.

If the fact can be established that cocaine is or has been used, the presumption of brain-failure and irresponsibility should be unquestioned. Where this fact is clear, all degrees of intellectual disorder and states of mental confusion will be found. It is possible some concealment may cover up the real condition, and automatic acts and thoughts give the appearance of sanity, but a careful study will bring out the true condition. In a case of forgery a cocaine-taker manifested unusual clearness, and superior judgment in the conduct of his case. After conviction, when the cocaine was withdrawn, he had confusion and delirium, finally ending in dementia.

Cocaine-taking has been a premonitory symptom of general paralysis, which came into recognition on the removal of the drug.

The general fact that should be recognized in all cases is that any form of drug addiction exposes the *habitué* to suspicion of mental unsoundness. Narcotics or any drugs which may possibly cause intoxications are always uncertain and dangerous. The alternations of exaltation and depression always act injuriously on both function and organic structures.

The medical question should be: How far has the natural health and vigor of the brain been injured? Having established the fact of drug-taking, it is to be assumed that the brain is more or less impaired. How far has this impairment extended in undermining the capacity for reason and judgment and the consciousness of right and wrong?

Cocaine-taking is a marked poisonous addiction, certain to be followed by mental confusion and intellectual disorders, acts, conduct, motives and reasoning are open to serious question.

Each case must be studied by itself and judged from the facts

A STUDY OF THE RELATIVE FREQUENCY OF DIFFERENT DISEASES IN PRIVATE PRACTICE

BY J N HALL M D DENVER, COL.

Professor of Therapeutics and Clinical Medicine in the University of Colorado

I have, of late, been much interested in the attempt to determine how much time should be apportioned to the different departments of medicine in a four years course of study, and, because of its bearing upon the subject, have collated one thousand cases from my records to show the proportion of diseases under the different headings, so far as this small number of cases can do so. The record is of the first thousand patients whom I saw in private practice, presenting themselves with distinct diseases. Naturally many patients figure more than once in this list, but a chronic dyspeptic, for example, is recorded but once, while one patient appears five times with separate diseases. In a few instances a patient has been entered in two columns at once as, for example, when a broken arm and an acute bronchitis needed treatment at the same time. Cases of extraction of teeth are omitted, because, although they fall to the lot of all country physicians they do not properly belong in medical practice.

I believe this record has a peculiar accuracy from the circumstances under which it was made. The community, living in Northeastern Colorado, represented an average American farming population, without preponderance of males, females, or children. No especial epidemics occurred during the time of the record (1884, with a few months of the year preceding and the one following). The only other accessible physician was one hundred miles to the westward, so that practically every case of illness demanding medical attention fell into the writer's hands. A few cases were sent to the hospital supported by the Union Pacific Railway in Denver, but not until after being seen and recorded by the writer, who, as local surgeon of the Company, decided the question of home treatment or removal to the hospital. Thus there was no opportunity for a special class of cases to be included in the statistics, as, professionally speaking, the writer was as much isolated as if upon an island in mid-ocean.

Although no manufacturing was carried on in the region, and hence, at first view, it might seem that the surgical cases would fall short of the proportion seen in most places, I believe that this point would be offset, firstly, by the fact that a considerable proportion of

chief end of medical education by their over-zealous activity. When General McClellan complained that "Lee's line was over forty miles long," Lincoln, with his characteristic good sense, remarked that "it must be mighty thin somewhere." Thus it is with certain practitioners. I have seen young physicians with a smattering of knowledge of diseases of the eye, ear, nose, throat, nervous system, and other special branches, who could not write a decent prescription or make a satisfactory physical examination of the chest. Yet any man in general practice will see one hundred cases of bronchitis before he is likely to see one case of locomotor ataxia or cataract.

On the other hand, I take great pride in my acquaintance with many excellent general practitioners who do not pretend to any great knowledge of the special branches we are considering, and do not hesitate to say so.

And yet all this does not imply that every case of conjunctivitis, neuritis or leucorrhea should be immediately referred to a specialist. The practitioner should be broad enough to do good work in treating all the every-day ills of humanity, and yet have a proper conception of the limitations of his field. This should be interpreted, I believe, to mean that he should not so circumscribe himself as to interfere with his fullest usefulness as a family physician, while, on the other hand, his patients should have the benefit of expert knowledge and treatment by thoroughly competent specialists when suffering from diseases out of the usual line, and especially when there is need of operative interference.

SKOTOGRAPHY—PROFESSOR ROENTGEN'S DISCOVERY

BY HAROLD N. MOYER, M.D.

Since our communication of last month, there is comparatively little to add to this subject.

As we then pointed out, the term "photography" could hardly be applied to the new process so the term '*skotography*,' from *skotos*, darkness, or literally dark writing has been proposed. Professor Goodspeed, of the University of Pennsylvania, suggests the term "*radiography*" to designate the process by which objects may be *radiographed*, and after the plate is developed we may print as many *radiograms* as we wish.



A large number of prints have been made of the bones of the hands, feet and wrist. A number of foreign bodies have been located and in some cases removed. Dr. James Barry, of Chicago, removed a bullet which had been previously located by this process, from the hand. So far as we are aware this was the first surgical case in this country in which the method has been employed. All of the skotographs so far made have differentiated nothing—they give but a shadowy reproduction of the bones the flesh appearing homogeneous, without a trace of the blood vessels, nerves, or other soft tissues. As long as the process is not improved beyond this

BOOK REVIEWS.

A YEAR BOOK OF TREATMENT FOR 1896 Philadelphia Lea Bros & Co 1896

This annual visitor is always looked forward to with a great deal of interest, as it epitomizes therapeutic progress for the year. To those not familiar with the previous volumes, we would say that it is made up of a critical review of original journal articles, and here and there through the volume are found references to recent text-books. There is perhaps something misleading in its title, for the material contained in it is of course not a product of the year 1896, but a presentation of the additions to therapeutics which appeared in 1894-5.

The contributors are Drs Barclay J Baron, Dudley W Buxton, Albert Carless, Alfred Cooper, Sydney Coupland, Geo P Field, Archibald E Garrod, M Handfield Jones, Reginald Harrison, G Ernest Herman, J Ernest Lane, Patrick Manson, Malcolm Morris, Edmund Owen, Sydney Phillips, Henry Power, Charles Henry Ralfe, E S Reynolds, William Rose, E Markham Skerritt, Walter G Smith, W J Walsham, W Hale White, B Arthur Whitelegge, and Dawson Williams.

This twelfth issue differs from its immediate predecessor in the fact that there is a section on Tropical Diseases, and another on Diseases of the Stomach, Intestines, and Liver, the former contributed by Dr Manson, the latter by Dr White.

In a special supplement we have some of the more important of the new inventions and dietetic novelties that have been introduced during the past twelve months.

While an exhaustive review of a work so condensed as this is practically impossible without reproducing it, we cannot refrain from mentioning some of the conclusions arrived at by the contributors. In the chapter on Diseases of the Heart we are informed that the year has not been marked by the introduction of any new cardiac remedies, but that the interest has not abated in the treatment of certain forms of cardiac derangement as carried on at Neuheim, and we are especially impressed with the value of the discussion on cardiac therapeutics before the Edinburgh Medico-Chirurgical Society, as contained in the papers of Fraser, Balfour, and Bramwell.

Diseases of the lungs, with tuberculosis, occupy an extended chapter, but many of the methods there described are still so much upon trial that it is impossible to form any correct idea of their value. From all that is being done in the treatment of tuberculosis, it is probable that in the next two or three years more definite methods of treatment may crystallize.

There is nothing startling to announce in the treatment of diseases of the stomach, intestines, and liver, but we are informed that the management of them has continued to improve, and the value of surgical treatment in many of these cases is pointed out, also that the general principles of rest and simple diet have come very much to the front, to the exclusion of polypharmacy.

The contributions to the treatment of diseases of the kidneys and diabetes are very meagre, though a few interesting observations have been placed on record.

In the treatment of gout and rheumatism and allied conditions there seems to have been a distinct advance in therapeutics based on an improved conception of the pathology underlying these disorders

In the chapter on Infectious Fevers the antitoxin treatment of diphtheria is thoroughly considered and we also note the treatment of typhoid fever by guaiacol a method that we predict we shall hear more of in the year book for 1897

In the chapter on Diseases of Children sterilized milk receives its share of attention, and it is noted that it presents special dangers of its own numerous observations having shown that it fails to produce a complete immunity to diarrheal diseases owing apparently to the fact that the processes to which the term "sterilization" is applied ordinarily do not really sterilize

The relation of sterilization to the development of rickets and other nutritional disturbances, as pointed out by Christopher are not quoted

Under the head of Anesthetics we note that Schleich's method of local anesthesia is regarded as the most important recent contribution to that subject though the general anesthetics are by no means omitted and it is evident that the last word regarding the action of these substances has by no means been said There are several contributions on bromide of ethyl as a general anesthetic, and also an excellent presentation of the newer and safer methods of administering the general anesthetics

The longest chapter in the book is that upon General Surgery and the important advances which have been made in this division of medical science In it we notice the conservative tendency of modern surgery combined with boldness of operative procedure and especially the advances noted in plastic operations and the conservation of tissues

In the department of Orthopedics the method of Jones in the operative treatment of paralytic flail joints is noted as one of the most important advances while the article of Ridlon on the Mechanical Treatment of Infantile Paralysis is freely quoted as tending to antagonize the too hopeless view often taken of these cases

In the section on Diseases of the Rectum, there is no reference to operations for hemorrhoids, while the best methods may be regarded as settled in England it is certainly not so in this country

The chapter on Venereal Diseases shows that the treatment of gonorrhea and syphilis is still very much *sub judice* though there has been advancement in other conditions

In the department of Midwifery, Dr Jones says "Year by year it becomes increasingly difficult to bring forward any new departures or considerable addition to our knowledge on the side of diagnosis or treatment, but it is equally true that each year we are able to bring forward evidence which goes far to explode old accepted fallacies or to give certainty to truths which have been suspected but not proven"

Under Diseases of the Skin we are informed that during the past year there has been a fair amount of activity in the dermatological world although no new departure has been taken, a good deal of less brilliant but not less useful, work has been done in the way of testing methods of treatment. Psoriasis and lupus are still the chief opprobria of dermatology and it was inevitable therefore that a large proportion of the work to be recorded should have reference to these affections

There is a summary of the therapeutics of the year 1894-5, chiefly with reference to new remedies, from the pen of Walter J. Smith, and in addition a selected list of new books, new editions, and translations, in this department of medical progress.

The book contains 476 closely printed pages, and is characterized by a compactness and lucidity of style, as well as symmetry in the presentation of the various subjects, hardly to be looked for in a work which is the joint product of so many contributors.

We have reviewed this book rather extensively, partly to show the advances which have been made in this important department of medical science, and also to show that the twelfth issue of this valuable annual sustains the reputation for practical helpfulness which the "Year Book of Treatment" has gained for itself among all who practice the healing art.

FORMULAIRE DES MEDICATIONS NOUVELLES. By Dr H. Gillet. Paris: J. B. Baillière et Fils. 1895.

This little work comes to us with most of the defects and comparatively few of the good qualities which distinguish the late modern French works on therapeutics. It is a small 16mo volume of 252 pages, which treats of about everything that can be grouped under the name of *materia medica* and therapeutics. We are told in the preface that the progress of therapeutics is marked by two classes of acquisitions: new remedies, and new methods or applications of old agents. Unfortunately, the author has adopted no classification, but has given us a simple alphabetical arrangement in which methods, drugs and diseases are considered without relation to each other, and which makes it necessary to use many cross-references. While the work claims to be a repository of new remedies, it is really an effort to present about all that has been added to the subject in the last ten or fifteen years, and, indeed, some of the methods described are much older. Though the author has omitted an extended description of the ordinary drugs in the *materia medica*, such as quinine, cod-liver oil, opium, etc., he has included many others which are equally entitled to seniority.

Taking at random one of the bricks composing this therapeutic edifice, we select mental alienation and its treatment, and find that *séquanin*, suggestion and nervous transfusion are recommended. Turning to *séquanin*, we find that it is described as a testicular extract obtained by the method of Brown-Séquard. Several pages are devoted to a description of this drug, and among numerous indications for its use we note that it is recommended especially in mental alienation accompanied by stupor, the various forms of locomotor ataxia and sclerosis of the cord (it seeming to make little difference whether the lateral or anterior portions are affected), cancer, chorea, senile debility, diabetes and polyuria, uterine fibroids, exophthalmic goitre, pulmonary gangrene, hysteria, incontinence of urine, Addison's disease, heart disease, arterio-sclerosis, and numerous other diseases. Finally, as if the author feared that something might have been omitted, we are informed that it is good in paralysis of varied origin. Suggestion in relation to mental alienation receives only the bare statement that it is good in kleptomania and in monomania. We fail to see why it would not be useful in the other forms of special mania—*mysophobia*, *gynephobia*, etc., and the term "monomania" leaves us in some doubt.

as to exactly what is intended. In the treatment of insanity the *transfusion nerveuse* is most accented. This seems to consist of nothing but the injection of a glycerin extract of the spinal cord of a freshly killed animal, preferably the sheep and is especially recommended in mental alienation with depression and melancholia. It is commended for many other nervous and constitutional affections, but we are warned against the use of it in cases of mental disease accompanied by excitement, and the authority of Babes is quoted against it in the degenerative diseases, Elroy's opinion is quoted to the effect that it would probably do harm in tuberculosis.

Among the things which we can commend in this work, though it is much too brief to be of practical value is the account of measures recently in vogue for the reduction of temperature by external means. This includes the application of guaiacol, sparteine and cocaine as well as the use of the cold bath—which while it is an excellent and useful means is by no means new.

Under the head of "Organo therapy" the author mentions cardin, nephrin, ovarin, séquardin, and the juices of the spinal cord, pancreas, lungs, spleen, supra renals, thyroid and thymus. He adds *naïvely* that a certain number of organs have, up to the present time, escaped experimentation among which are the muscles, ganglia, lymphatics, liver, etc. It is to be hoped that these omissions will be rectified before another edition of this work is called for.

It is but natural that the serum treatment should receive extended notice. The author makes a distinction between the serum of animals which are rendered refractory to a disease by inoculation, and of those which are naturally immune, and a third division of human serum. Among the better known serums such as anti-tubercular and anti-diphtheritic we find mentioned anti-cancerous, anti-anthrax, anti-cholemaic, anti-streptococcic, anti-syphilitic, anti-pneumonic, anti-tetanic, anti-typhoidic, and anti-varicolic. With such an array of 'anti's', it is a wonder that diseased conditions continue to exist upon the earth.

PRACTICAL URINALYSIS AND URINARY DIAGNOSIS. A Manual for the Use of Physicians, Surgeons and Students. By Charles W. Purdy, M.D. Second revised edition. With numerous illustrations including photo-engravings and colored plates. In one crown octavo volume 360 pages. Philadelphia: The F. A. Davis Co.

The strong feature of Purdy's Urinalysis is that it is written by a man who for many years has made a specialty of diseases of the kidney and has himself tested the various methods of examination of the urine, so that he gives us as the result of a rich experience what he has found practically to be the very best.

The work is divided into two parts: The Analysis of the Urine and The Urinary Diagnosis. The first part is by far the more complete and satisfactory. The second part, while excellent, suffers from being very condensed. There is little in the work to criticise, and yet it has seemed to us worth while to mention a few points that attracted our attention, either as worthy of special praise or as fairly open to criticism.

The author, we think, is not explicit enough in his directions for the collection of the twenty-four hours' urine. Many patients are told to collect

In the foregoing the translator has given an excellent epitome of the chief argument in the work. An examination of the data on which it is founded shows conclusively the correctness of the author's deduction

The Columbian origin of syphilis is proved to have had no foundation in fact. The translator says "As Americans, we may be pardoned a certain amount of satisfaction, in being vindicated of the charge of having infected Europe with a disease which at one time inspired so much horror and is still looked upon by the public as a disgraceful and disreputable disease." We confess that we do not share in the author's elation. We can see how the few remaining red men may be gratified by this tribute to aboriginal chastity, but inasmuch as we were not "discovered" when Columbus reached this land it is difficult to see how *our* syphilis could have been carried back to Europe. Buret calls honors easy in this question by definitely determining that syphilis has undoubtedly existed in both hemispheres since prehistoric times.

The work is an excellent tribute to the translator's skill, who combines a masterly knowledge of the French tongue with the ability to write clear, terse and elegant English.

THE PRINCIPLES OF BACTERIOLOGY By A. C. Abbott, M. D., First Assistant, Laboratory of Hygiene, University of Pennsylvania. Third edition, enlarged and thoroughly revised. Cloth, pp. 482, with ninety-eight illustrations, of which seventeen are colored. Price, \$2.50. Philadelphia: Lea Brothers & Co. 1895.

The early appearance of the third edition of this book is sufficient evidence of the favorable reception it has obtained. Upon the publication of the second edition we reviewed it in *MEDICINE* in detail. From the accurate and comprehensive manner in which the second edition dealt with the subjects treated, it has been found necessary to make but few changes or additions. The "Councilman-Mallory" method of preparing blood-serum has been added, also Bunge's and Van Ermengem's methods of staining flagella. Several kinds of animal-holders are newly described. Twenty pages have been added to the text. The book still remains at the head of the list in English for use by beginners and students, and is particularly valuable as a guide to practical work, either in a laboratory or where one is working without the aid of an instructor.

G. H. WEAVER

COLOR VISION AND COLOR BLINDNESS A Practical Manual for Railroad Surgeons. By J. Ellis Jennings, M. D. The F. A. Davis Co., Philadelphia, and 9 Lakeside Building, Chicago. 1896.

In this volume of 109 pages the author gives a compilation of what is known concerning color blindness and the methods of testing for it. Although the subjects which it presents can be equally well obtained from any of the larger works on physiology and ophthalmology, it puts them together in a practical way for those who want a convenient reference-book. The work does not pretend to go deeply into the scientific discussion of color-perception.

HENRY GRADLE

PROGRESS OF MEDICAL SCIENCE

MEDICINE

UNDER THE CHARGE OF JAMES B. HERRICK, A.B. M.D.

Adjunct Professor of Medicine Rush Medical College Attending Physician to the Cook County Hospital Chicago

Leucocytosis in Tuberculosis —

Stein and Erbmann (*Deutsches Archiv für Klin Med* bd 56, hefte 3-4), after examining the blood of forty cases of tuberculosis reached the following conclusions

1 In incipient phthisis the normal number of white blood-corpuscles is found

2 In advanced processes that remain limited to the apex of the lung, or in cases that have progressed still further but have not yet led to the formation of cavities, the normal number of white blood corpuscles is found

3 After attacks of hemoptysis there is, in most cases, a moderate leucocytosis, that disappears as the hemorrhage ceases

4 In advanced tuberculous processes the normal number of white blood cells is found in cases of chronic infiltrating tuberculosis, with or without a moderate destruction of lung tissue

5 An increase of leucocytes is found in (1) cavity formation, (2) in chronic suppuration in consequence of destructive processes (3) in terminal exudative inflammatory processes, and (4) in hyperplasia of the lymph glands in cases without extensive destruction

When, in a tubercular individual in whom there exists no chronic suppuration and no exudative inflammatory process, an increase in leucocytes is found, the presence of a destructive ulcerative process in the lungs—i.e., cavity formation—can be looked upon as proven

If, in a tubercular individual in whom during a long period blood counts have been made and the normal number of leucocytes found, and from a certain time an increase in the number of leucocytes has occurred, this period can be looked upon as the beginning of the destructive process in the lung

If we find in a tubercular individual the normal number of leucocytes, in the majority of cases the existence and the formation of a cavity can be excluded—at least one of any extent

far as possible the depressed arch of the foot, and this can be done in the following manner. Seat the patient on a chair, and, facing the foot, place the leg between your knees, grasp the heel firmly with the right or left hand, according as the case is a left- or right-sided deformity, steady it, and with the other hand carry the foot round the arc of a circle into extreme inversion and external rotation, press up the head of the astragalus and scaphoid while holding the foot in its new position. Anesthesia is necessary in most cases, as it is a very painful procedure.

“Put the foot up in this position in a plaster-of-paris bandage, and leave it so for two weeks. By this time the arch will have assumed its new position, and a considerable amount of pain and tenderness will have disappeared. Remove the plaster, replace the anterior portion of the foot in its normal position, vaselin well, and lay it down upon its outer side in a bed of plaster-of-paris mixed with water, to which a little salt has been added to hasten the setting. This soft plaster can be poured upon a square of factory cotton or muslin, covering a ring of loose cotton slightly larger than the foot. With this muslin the plaster can be raised and applied closely to the foot. The mould should be first made to cover the lower half of the foot only, its edges are then to be smeared with vaselin, and more plaster applied to the upper remaining portion of the foot, thus forming a complete mould. When set, the divisions can easily be opened by passing a knife-blade along the smeared edge and prying them apart. The upper part is lifted off, the foot removed from the lower, then the upper is replaced, the toe space stuffed with cotton, a bandage tightly applied over the mould, and it is now ready for the liquid plaster to be poured in to form a cast. This done and the plaster allowed to harden, the mould is removed, and you have a perfect cast of the foot in its new and normal position. This cast is sent to a foundry, where a duplicate in iron is made, and thin sheet steel is heated and hammered on it to fit it exactly, and then trimmed to extend from the ball of the great toe to the inner tubercle of the os calcis, and from the level of the tubercle of the scaphoid to the outer border of the foot, narrowing externally. It can then be nickel-plated after polishing. This plate, fitting the foot closely, makes the best possible support, and is very comfortable. The plate may be made with advantage of aluminum. Another excellence in these plates is that they can be inserted into any shoe, but preferably one with a low flat heel and straight inner border, laced, of course. They do not necessitate the special building up of every pair of shoes, an item of considerable

expense. A pair of these plates can be made for about five dollars, and will last for a long time if kept in order, clean, dry, and free from rust due to sweating of the foot, a trouble which is singularly frequent in this affection "

The Disadvantages of Non-absorbable Sutures In Hernia Operations —

Dr A E Gallant (*Matheus Medical Quarterly*), January 1896) publishes a letter from New York in which he makes reference to a paper presented by Dr W B Coley before the Academy of Medicine on the above subject. The report of Dr Coley was founded upon a series of fourteen cases which he had observed at the Hospital for Ruptured and Crippled. In all these cases the use of silk, silkworm gut or silver wire was followed, within a period varying from a few days to two years, by suppuration with the formation of sinuses, extrusion of the buried sutures, and relapse of the hernia. The reappearance of the hernia occurred as early as two months and as late as three and a half years after the original operation.

In one case, first operated on in 1893 a silk suture being employed, there occurred a sinus in March, 1894 three or four sutures extruded, sinuses scraped. A second operation was performed the following June, and silkworm gut was used this time, but again hernia reappeared. Third operation, with kangaroo tendon, was successful. In two cases of double inguinal hernia, recurrence took place on both sides within a year. In three cases of Dr Coley's, relapse followed the use of silkworm gut and in none did the sinuses heal until all the sutures came away. Dr Coley has had no suppuration, sinus or relapse in any case where he has used the kangaroo tendon for buried sutures. The trouble in these cases he believes to be due to the irritation from the presence of a foreign body. Kangaroo tendon is found to be absorbed in from eight to ten weeks.

Mustard as an Antiseptic —

Dr Roswell Park (*Canadian Practitioner*, January, 1896) remarks "I have endeavored to call attention to the remarkably efficient properties possessed by mustard as an antiseptic or sterilizing agent for the surgeon's hands, and for the skin of the part to be operated upon. One never goes into a house, or at least a locality, in which mustard cannot easily be procured and my custom is to thoroughly rub and scrub my hands with a mixture of green or other soap, corn meal, and mustard flour, for about five minutes. After rubbing thoroughly into all the crevices and creases

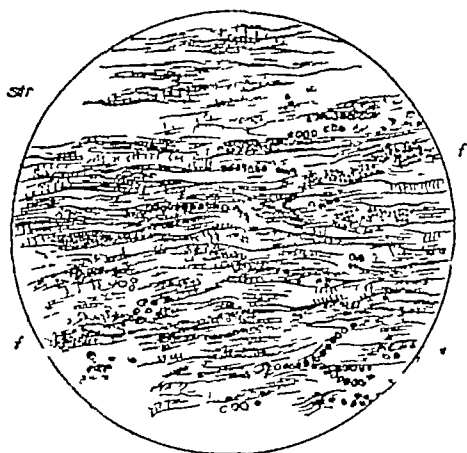
seem to have been satisfactorily answered. There are some observers, however, who insist emphatically on the importance of cultural peculiarities, and among such are to be reckoned Dauber and Borst, who had occasion to observe carefully a malignant endocarditis and general septicemia following upon gonorrhea. On making a bacteriological examination of the blood and the spleen-pulp, they discovered a diplococcus which was morphologically identical with the gonococcus, and which had the same staining reactions. This germ did not grow on ordinary culture media, though it afforded abundant colonies on human blood-serum agar. The colonies, however, presented an appearance so entirely at variance with that of the colonies of ordinary gonococci that the authors concluded they were dealing with an entirely different micro-organism.

Regarding these observations as satisfactory, we would conclude that a malignant endocarditis may arise during the attack of gonorrhea, and be induced by a germ so similar to the gonococcus that only certain very indefinite cultural peculiarities would differentiate them. Such a conclusion, too, would practically render valueless all previous observations of a similar kind where no bacteriological investigations had been made. On the other hand, it is to be regretted that the authors did not obtain gonococci from the local discharge in the case, grow them on identical media, and, by thus instituting tangible comparisons, prove that the gonococci and the germs found in the blood were two different species of micro-organisms. We cannot positively assert that gonococci, under slightly altered conditions, may not offer varied appearances, even on identically prepared media. It should, however, be added that not a few cases have been recorded where, although pure growths of gonococci have been obtained in metastatic abscesses, in other tissues and organs of the same case ordinary pyogenic bacteria, etc., have been found—manifesting the presence of either a mixed or secondary infection similar to those observed in diphtheria, typhoid fever, tuberculosis, etc.

From the work that has been accomplished regarding the nature of the complications of gonorrhea, the writer considers it established beyond doubt that gonococci may enter the blood-stream and set up suppurative processes in different parts of the body—a malignant endocarditis, general sepsis, and death, further, that many complications are to be regarded either as secondary infection or as the result of the action of gonococci mixed with other bacteria. The proof that a toxin is developed and is capable of lighting up similar conditions, though not to be excluded, lacks at present a substantial foundation.

Diphtheritic Cardiac Complications —

Trevelyan (London *Lancet* Jun 25, 1896) reports a case of diphtheria of the faucial variety in which he examined some of the membrane on the sixth day of the disease and obtained from it the diphtheria bacillus in pure culture. The patient, a girl aged seven, was injected with 5 Cc. of serum (Schering) on the seventh day of the disease. Improvement set in after this treatment but ten days later death occurred unexpectedly from cardiac paralysis. Albuminuria persisted up to the time of death. At the necropsy no diphtheritic membrane was found on the mucous membranes. The



Acute Degenerative Myocarditis / fibre with fatty granules. v, vessel str, striated fibres Staining agents Formol osmic acid Bismarck brown

heart weighed $3\frac{1}{2}$ ounces and was slightly dilated, but the muscular substance appeared to the naked eye to be healthy. The kidneys together weighed 5 ounces and were of a normal size, but their structure appeared blurred. The liver and spleen weighed 24 ounces and $2\frac{1}{4}$ ounce respectively, and were apparently healthy.

Marked changes were present in the myocardium. Some of the cardiac muscle fibres were seen in osmic acid preparations to consist of granules which stained a deep black color. In some places the degeneration seemed to have advanced so far that no definite fibres were distinguishable. The striations of the fibres remained in

cases, it must be such a one as can be easily converted into a chloride, or that will reach the intestine in a soluble form. The only reason, from a practical and scientific standpoint that can be urged in opposition as justifying the use of any other iron salt, aside from the bichloride, is the fact that the latter may disturb the digestive function and prevent the utilization of the normal food stuffs. When the case, some one of the other preparations of iron may be absorbed by the stomach and thus act more efficaciously. The third class of cases require the same attention to diet and exercise as the two preceding. Exercise, of course cannot be given in all cases, but the best possible supply of pure air should be secured under all circumstances. But unless there is an excess of sulphur compounds in the alimentary canal, the inorganic salts of iron are not only useless but liable to damage an already weak digestive system.

With this knowledge of the physiological economy, and this classification of anemia, supported as it is, by an abundance of clinical evidence, iron therapeutics in general is changed from the empirical position it has so long occupied, and becomes a truly scientific and rational one.

Symptoms and Treatment of Acute Dilatation of the Heart in Scarletinal Nephritis —

Among special complications of scarlatina which do not appear to have sufficiently attracted the attention of practitioners, is the acute dilatation of the heart supervening in the course of scarlatinal nephritis, six cases of which have come under the observation of Dr. A. Steffen at the Hospital for Children's Diseases in Berlin.

This formidable complication which usually makes its appearance when the scarlatinal nephritis is fully developed, is manifested by exercise dyspnea, associated with cyanosis, and rapidly assuming the character of orthopnea. The heart is dilated, and this dilatation progresses so rapidly that within from twenty four to forty-eight hours the apex reaches the axillary line.

This dilatation affects first the left ventricle, but may also extend to the right. It is accompanied by considerable weakening of the heart's action, the quantity of urine decreases, but the natural micturition increases. This condition may rapidly end in death, unless treatment is promptly instituted. The treatment should consist in the first place, of the administration of iron in large doses, which, Dr. Steffen states, is alone capable of

of this substance, for which he proposes the name of *thyro antitoxin* determines in animals the quickening of the pulse which characterizes injections of thyroid extract, and checks the convulsions in thyroidectomized animals. In animals into which the antitoxin is injected immediately after extirpation of the thyroid body, no convulsions occur. The action of this substance, however, is confined to the convulsions, and does not extend to the other symptoms of cachexia strumipriva. The animals ultimately die, because the antitoxic function of the thyroid body is not supplied by the thyro-antitoxin.

Oxygen in Asphyxiation by Illuminating Gas —

Shillington (*Montreal Medical Journal*, October, 1895) reports the case of a man 30 years of age who was exposed to illuminating gas for about ten hours, and at the time he was found was profoundly asphyxiated. Artificial respiration, strychnine and the faradic brush were employed, which caused temporary improvement, but, the condition becoming worse, oxygen was employed, with immediate and slow improvement in all symptoms. In all about fifteen gallons were used in the course of eight hours. The reporters are firmly convinced that if this remedy had not been used their patient would have died.

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN, A.M. M.D.

Professor of Clinical Gynecology in the College of Physicians and Surgeons of Chicago
Professor of Gynecology in the Post-Graduate Medical School. Vice President
of the Chicago Gynecological Society, etc.

An Audible Intra-uterine Cry —

Dr. Willh. Brull of Dees, publishes in the *Wiener Klinische Wochenschrift*, No. 29, 1895, an account of an obstetric case to which he was called, after two midwives had made unsuccessful efforts at extraction, and labor had been in progress forty-eight hours. On entering the room he heard distinct cries proceeding from the uterus of the patient. These cries were loud enough to be heard in adjoining rooms. On examination a breech presentation was found, and in order to bring down a foot a hook was employed, the application of which caused a sharp cry from the fetus. The child was born asphyxiated but revived under artificial respiration and a dead twin fetus was then extracted. The mother and child did well.

Inasmuch as certain colleagues of Dr. Brull were unkind

saving the life of the little patient The effect of this remedy has been very striking in all cases treated by him, the general condition rapidly improving, after which the orthopnea and cyanosis decreased, the pulse became stronger, and the diuresis increased Physical examination revealed marked decrease in the size of the heart, the apex soon beating in its usual position in the nipple line, and the right ventricle, if it was dilated, resuming its normal size This result was obtained within twenty-four hours in two patients, within forty-eight hours in three others, and within four days in the last In one case, dilatation of the heart, which had been checked within two days by the treatment in question, made its appearance again at the end of a week, but yielded for the second time definitively to the administration of ergot

The ergot cured also in several instances the considerable enlargement of the liver, accompanying the cardiac dilatation, which was due to passive congestion on account of the weakened heart action

Dr Steffen exhibited the ergot in doses varying, according to the age of the child, between 30 and 50 centigrammes, three or four times during the twenty-four hours

In the case of a child of six, in whom the dilatation of the heart was especially rapid and severe, he even administered 50 centigrammes of ergot every other hour, the little patient taking in all $7\frac{1}{2}$ grammes of ergot The effect of this treatment was excellent

No ill-effect was observed from the ingestion of the drug in this, or any other, case

Concurrently with the ergot treatment, Dr Steffen has recourse to stimulants, such as heavy wines, strong coffee, hypodermic injections of camphorated oil or ether, or ingestion of camphor when the stomach is able to bear this substance — *Medical Week*, November, 1895

Thyro-Antitoxin —

Frankel, in macerating and boiling dried thyroid glands, found that the albuminoid substances precipitated by means of acetic acid possess no special properties, and that the really active substance contained in the thyroid gland remains in the liquid which is filtered after separation of the albuminoid substances From this liquid he obtained a crystalline substance, in the highest degree hygroscopic, which gives the majority of the characteristic reactions of alkaloids Its chemical formula is $C_7H_{11}N_3O_5$, and it appears to be a derivative from the guanidine series Intra-venous injection

of this substance, for which he proposes the name of *thyro antitoxin*, determines in animals the quickening of the pulse which characterizes injections of thyroid extract, and checks the convulsions in thyroidectomized animals. In animals into which the antitoxin is injected immediately after extirpation of the thyroid body, no convulsions occur. The action of this substance, however, is confined to the convulsions, and does not extend to the other symptoms of cachexia strumipriva. The animals ultimately die because the antitoxic function of the thyroid body is not supplied by the thyro-antitoxin.

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of the medical adviser in giving careful directions, and on the part of the mother or nurse in carrying out these directions. His mode of preparation is based upon the average composition of human milk and the average composition of cow's milk as obtained in London from one of the dairy companies. The mixed milk of a large dairy company is taken as a standard, for the reason that its composition is much less variable than the milk of any one cow.

Human milk is a sterile alkaline fluid, varying largely in its composition, a number of averages being tabulated below for comparison.

ANALYSES OF 100 GRAMMES OF WOMAN'S MILK

	Leeds Results obtained from sixty women	Luff Results from the analysis made for Cheadle of the milk of twelve women	Meigs Results obtained from forty-three women	Rotch Mean analysis from the results of many other observers
	Per cent.	Per cent	Per cent	Per cent
Proteids	2.0	2.35	1.046	1.0-2.0
Fats	4.0	2.41	4.283	3.0-4.0
Lactose	7.0	6.39	7.407	7.0
Ash	0.2	0.34	0.101	0.2

Cow's milk, by the time it reaches the consumer, is acid and crowded with micro-organisms, being found contaminated with foreign bodies and sometimes preservative agents. During the last winter he analyzed eight specimens of cow's milk obtained from one dairy.

MEAN OF EIGHT ANALYSES OF COWS' MILK

	Per cent
Water	87.0
Solids	13.0
Proteids { Caseinogen " 2.6 }	4.06
{ Lact-albumin " 1.4 }	
Fats	3.70
Lactose	4.48
Ash	0.76

These results agree very closely with those obtained by other observers. Thus Leeds gives the following as the result of numerous analyses.

ANALYSIS OF COWS' MILK LEEDS

	Maximum	Minimum	Average
Proteids	6.0%	3.0%	3.76%
Fats	6.0	3.0	3.75
Lactose	5.5	3.5	4.42
Ash	0.9	0.6	0.68

Taking the results of the present analyses of cows' milk and Leeds' analyses of human milk as a basis he suggested to Mr. Richmond, the analyst of the Aylesbury Dairy Company, that the Company should prepare a special milk for infants according to the following process: Taking an equal quantity of mixed cows' milk and a 10-per cent solution of lactose, the whole is passed through a separator so arranged that the two outgoing streams are equal, and thus divided into two equal parts, one of which contains practically the whole of the cream and may be termed *cream milk*, while the other contains practically no cream and may be termed *skimmed milk*. The composition of these two fluids would therefore be as follows:

	Cows' Milk.	Separated Milk.	
		Cream milk.	Skimmed milk.
Proteids	4.0%	2.0%	2.0%
Fats	3.7	3.5	0.2
Lactose	4.4	7.2	7.2
Ash	7	0.35	0.35

The dairy company then undertook to prepare the milk of the following quality, and supplied it for trial to the Belgrave Hospital for Children:

	Cream Milk.	Human Milk.
Total solids	13.11%	13.20%
Proteids	1.82	2.00
Fats	4.02	4.00
Lactose	6.89	1.00
Ash	0.39	0.20

It will be seen from the above table how closely the prepared milk resembles human milk in composition. It is well taken and digested by infants, but it was found that the percentage of fat was higher than some of them could digest. The amount of fat has since been reduced to 3.7 per cent, with excellent results. It is supplied in air-tight bottles, is previously pasteurized at a temperature of 160° F., and is rendered faintly alkaline.

Infantile Scurvy —

Dr. Isaac A. Abt (*Chicago Medical Recorder*, January, 1896) reports a case of this disease in a female infant eleven months old. Both parents were healthy, but the grandmother on the maternal

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.,

Professor of Neurology in the Chicago Polyclinic, Consulting Neurologist to the Illinois Eastern Hospital for the Insane

Hysterical Breast —

Gilles de la Tourette (*Nouv Icon de la Salp*, vol 8, p 107) says this hysterical affection of the breast consists in a temporary or permanent enlargement with distinct hyperesthesia of the integument. During the attack there are various local vaso-motor disturbances which vary from simple congestion to distinct edema, and which at times perhaps terminate in cutaneous gangrene. The hyperesthesia is sometimes so intense that the patients cannot endure the contact of clothing. It is sometimes permanent, but there are always exacerbations produced by the causes which ordinarily aggravate hyperesthetic zones (intense emotion, menstruation, etc.), at the same time that the hyperesthesia increases, the breast becomes the seat of prickly, lancinating pains and a burning sensation, at times very intense, it becomes swollen, sometimes to double the normal size, and the nipple is in a state of erection. Not infrequently at the height of the attack there is a convulsive seizure, or at least an indication of the same, consisting of a feeling of strangulation, dizziness, and other cephalic phenomena. The appearance of the integument is variable. There may be white, red, or cyanotic edema. In the more simple cases the tumefaction disappears with the pain, but very often, especially if the attacks are frequent, the swelling persists to a certain degree and is always accompanied by more or less hyperesthesia. During the attack all palpation is impossible, but in the intervals one or two tumors, only slightly tender to pressure, may be discovered by deep pressure.

The diagnosis may be difficult even during the intervals, but is much more so during the attack, particularly if cutaneous gangrene with ulceration is added to the former symptoms. It is possible that secondary infection may be grafted on to the spontaneous gangrene, producing suppuration, swelling of the axillary glands, etc., but this is exceedingly rare.

Sensory Disturbances in Locomotor Ataxia, and their Location —

Some years ago the subject of locomotor ataxia was thought to be practically exhausted, the symptomatology and pathology clear, the disease was labeled and put away upon the nosological shelf

More recently the question of its pathology has been awakened afresh and is not yet settled, and additions to our knowledge of its symptomatology are far from infrequent. Such an addition we may count the investigations of Laehr (*Archiv für Psychiatric*, bd 27, heft 3) regarding the occurrence of anesthesia upon the trunk. It is about two years since Hitzig called especial attention to this symptom, but the work of Laehr is the fullest and most systematic up to date, embracing as it does the careful, often repeated examination of sixty cases of locomotor ataxia.¹ In only five was there no anesthesia of the trunk, and these five were all cases of locomotor ataxia complicating dementia paralytica, in which the spinal affection was secondary to and much less prominent than the cerebral affection. Thus trunk anesthesia is usually not very marked, and relates particularly to the perception of touch rather than pain, in contradistinction to the sensory disturbance of the lower extremities which ordinarily first manifests itself as an analgesia while sensation for touch is normal. Its location is generally at about the level of or just below the nipple and takes the form of a band reaching from the spine to the middle line in front. It is nearly always bilateral, but the bands of the two sides may not be of the same width nor on the same level. Want of symmetry is generally due to the anesthesia of one side extending lower as the upper border seldom differs on the two sides. In the incipient stage the band is narrow, taking in one or two intercostal spaces and their borders, or the anesthesia itself may not be constant. Indeed, in this stage there may be no distinct anesthesia, but simply an inability to locate touches well, while the power of localization is often found in the area adjoining a distinctly anesthetic surface. When the anesthesia is very slight, a prolonged examination of touch and pain sensation may improve it, so that the anesthetic area diminishes in size. [The editor has found the faradic current to have the same effect.]

One of the most interesting facts elicited by Laehr's investigations is that the areas of anesthesia correspond closely, not to the peripheral nerve distribution but to the spinal segments, as outlined by the work of Thorburn, Starr, Sherrington, Head and others. The band about the trunk has a more horizontal position than the ribs so that if it corresponds to a certain rib in front it falls one or two vertebræ below it behind. In some cases the author could watch the gradual extension upward of the anesthetic zone. With

¹ The writer has systematically examined for anesthesia of the trunk in locomotor ataxia since his attention was called to its occurrence by Dr. Max Höppel of Berlin, nearly three years ago. His results agree in the main with those of Laehr both as regards frequency and location although based on much smaller clinical material.

great regularity, as soon as it reached the third intercostal space, it soon began to extend onto the arm, at first affecting only the inner surface below the axilla, and then gradually covering the whole inner border before it spread much toward the radial side. Eventually the whole arm may become anesthetic, but always by this extension from the ulnar to the radial side. As already mentioned, this corresponds to the gradual upward invasion of spinal segments, and a similar progression downward onto the lower extremities could also sometimes be traced. But it is not to be forgotten that a peripheral neuritis, which is now known to frequently occur in locomotor ataxia, may entirely change this distribution of anesthesia. Analgesia of the ulnar trunk—that is, absence of pain when it is pressed against the condyle—he finds to be much less frequent (16 in 43) than did Biernacke (14 in 20), who first described it. [The editor has found it in fully 50 per cent of his cases.] It is of interest, too, to note that the author found in a number of cases entirely distinct bands of anesthesia corresponding to spinal segments separated by a considerable interval, which would seem to show that the pathological processes of locomotor ataxia may begin at nearly the same time in different parts of the cord.

Another interesting fact is that at the border of the anesthetic zone the skin is often hyperesthetic to pricking, pinching, and cold, and not only this, but in this hyperesthetic zone the cutaneous reflexes are particularly lively. Laehr thus easily accounts for the difference of opinion regarding the activity or absence of the superficial reflexes in locomotor ataxia. If the place we stimulate to elicit a superficial reflex (*e g*, the abdomen for the abdominal reflex, the inner surface of the thigh for the cremaster reflex) happens to be within the anesthetic zone, the reflex will be diminished or lost, if within the hyperesthetic zone it will be exaggerated. The author considers the trunk anesthesia to be a very early, but not the earliest, sensory disturbance, as some degree of analgesia of the lower extremities generally precedes it.

OPHTHALMOLOGY

UNDER THE CHARGE OF HENRY GRADLE, M D, CHICAGO

The Time of Occurrence of Syphilitic Disease of the Optic Nerve —

In the *Centralblatt für Practische Augenheilkunde*, December, 1895, Januczkiewicz has tabulated 150 cases of syphilitic disease of the optic nerve, from Hirschberg's clinic, with reference to the

time of occurrence after infection. Among these were forty five instances of idiopathic atrophy of the optic nerve. The earliest date after infection was six months, the tardiest, twenty nine years. In most instances the disease began within five to ten years after the occurrence of syphilis. In ten cases the disease progressed to absolute blindness in spite of treatment, the shortest period of transition being five months, the longest five years.

Sixty two cases were atrophy dependent upon spinal disease or a syphilitic basis. The shortest interval between infection and visual disturbance was found to be two years, the longest thirty years. In most cases the disease began within five to twenty years after infection. Ten cases progressed to blindness, the quickest within one year, the slowest within eight years. In one of these instances ataxic symptoms preceded the optic nerve trouble by fourteen years.

Inflammation of the optic nerve due to syphilitic infection—twenty six cases—occurred at an earlier period than atrophy, usually within the first up to the fifth year of the syphilitic history, in one instance it began even within $2\frac{1}{2}$ months after infection, while in a few others twenty to twenty eight years elapsed. Eleven of these patients improved very rapidly under the use of injections. Seventeen other instances were observed after a previous specific optic neuritis had progressed to the stage of atrophy. The earliest observation among these was made within two years after infection, the latest twenty-eight years after.

Episkleritis Periodica Fugax.—

Under this name Professor Fuchs of Vienna, describes (*Von Graefes Archiv für Oph*, vol 41 No 4) a disease which was recognized by Von Graefe twenty five years ago but which has since fallen into oblivion in literature. While the author terms it a relatively rare type of disease he reports twenty two cases. It shows itself as a transient but relapsing form of circumscribed inflammation of the subconjunctival tissue upon the eyeball, over the sclera. It may occur alternately in one and then in the other eye, or may involve both. It is usually preceded by pain, lachrymation and dread of light whereupon a localized redness appears upon the eyeball, lasting one or two, or even up to six or eight, days, rarely several weeks. There is distinct tenderness and the pain is described as variable, sometimes in the form of migraine. In some instances cited the iris was congested and, judging from the deep injection, the ciliary body was also presumably involved. In one

case there was temporary spasm of the ciliary muscle. The disease leaves no sequela, but it returns within varying periods of less than a year, and these relapses extend over many years. Of the twenty-two patients, fifteen were men, seven women, none below the age of 21.

The causes are probably variable. Gout, which Fuchs suspected, in view of statements made by Hutchinson, could not be demonstrated in any instance, yet a diet suitable for gouty patients often proved of benefit. Four times rheumatism was, presumably, an inducing condition, one of these patients was markedly benefited by salicylic acid.

Malarial infection was suspected by Fuchs as one of the factors in some instances. In three cases enlargement of the liver could be demonstrated. One of these patients could prevent his attacks by means of quinine. Three patients were benefited by quinine, and two to the extent that the disease did not return. In other instances the attacks were either secondary to acute nasal trouble, or were at least induced whenever nasal disease recurred, in two of these the attacks could be brought on almost with the certainty of an experiment by exposure to cold. In most of the cases, however, neither the individual attack nor the liability to relapse could be influenced therapeutically. In one case the attack ceased after the extraction of a healthy but unusually long root of a wisdom tooth, and no relapse occurred within a year. Besides this instance, the only permanent cures were those obtained by means of salicylate of sodium in one, and by quinine in two instances.

LARYNGOLOGY AND OTOTOLOGY

UNDER THE CHARGE OF W. E. CASSELBERRY, M.D.,

Professor of Therapeutics and of Laryngology and Rhinology in the Northwestern University Medical School, Laryngologist and Rhinologist to St. Luke's Hospital, Laryngologist to Wesley Hospital, etc.

Electrolysis as a Treatment for Deviations, Spurs, and Ridges of the Nasal Septum —

Wm. L. Ballenger, M.D., (*Journal of American Medical Association*, Jan. 11, 1896) says excrescence of the nasal septum is ordinarily treated by the surgical method, by saw, knife, or trephine—which method is objectionable to many, chiefly on account of the possibility of serious hemorrhage and of the necessity either immediately or thereafter to pack the nostril. Many, not all, excrescences can be removed by the effective, albeit more tedious, process of

electrolysis The author describes the technique and appends a table of cases He has employed chiefly the monopolar method—that is, the insertion of one needle only into the spur, the circuit being closed by a sponge electrode placed elsewhere on the body There can be no doubt that as a rule the bipolar method is more convenient, equally effective, and less painful—a conclusion which the author likewise submits He takes the position that bone, as well as cartilage, can be thus resolved Others have met with difficulty in inserting needles into hard bony spurs, and have failed to cause their resolution even when the needle could be forced into approximate position Bone, however differs in degree of hardness, and thus spurs which consist chiefly of cartilage with small spicula only of bone running through their centre can be materially reduced in size or even wholly removed, while certain other spurs of bone of ivory like hardness will resist this method

The author specifies "deviation of the septum" in the title of the paper, but does not attach this diagnosis to any case tabulated, the condition actually treated being designated variously as "spur," "excrecence," or "ridge" The title is therefore, in part, misleading, inasmuch as it is evident that a simple deviation or bending of the septum cannot be corrected or straightened by electrolysis, which would only result in a perforation If in addition to the deviation there is also a spur—that is, conjoined deviation and excrecence—the thickening may be reduced or removed by electrolysis, but the deviation will remain These distinctions should be held clearly in mind when considering in any given case the applicability of electrolysis

Cholesteatoma of the Ear —

Dr Alexander Randall (*Philadelphia Polyclinic*, Nov 30, 1895) in a masterly manner elucidates the subject of cholesteatoma, and formulates a treatment He regards the tumor as a desquamated product of an epidermal infection of the mucous membrane of the tympanic cavities, devoid of nerves and vessels and of most of the attributes of what we consider true tumors—but it is as truly a neoplasm as is the allied pearly nodule of epithelioma Without malignancy, it yet has a malign tendency to recur, and by its location to inflict serious damage by pressure Even without caries, the surrounding bone will absorb as the mass grows by onion like layers of accretion, and the cranial cavity may be opened with fatal results through pressure, or from erosion of the lateral sinus More often there is suppuration, and the material tends to force its

way into the external meatus and declare itself there by the flakes in the discharge. This is the rule in suppurations of the attic, and the epidermal collections there, rather than the accompanying ossicular caries, are responsible for the obstinate persistence of cases of this kind.

As regards treatment, the removal of the drumhead and ossicles may open a sufficient exit for the pearly collection, and thereafter the material may come away as fast as it forms, but too rarely is this exit adequate, hence its frequent failure and the resort to more radical operations. The author favors the operation of Stacke; its principle is that the cavities in which cholesteatomatous masses have formed and tend to recur shall be for the future freely opened for the exit of the masses. A masterly conservatism leaves every portion of tissue which does not require removal either because of its own disease or to give access to the affected parts. The operation leaves no external wound, yet gives for the future free access to the involved region, while the complicated system of cavities with bony or membranous divisions is thrown into one with the deeper part of the canal in identically the same manner that nature not infrequently adopts. It is interesting to note how Stacke's operation is displacing other procedures in the best foreign clinics. Schwartz, who used to do two or three dozen excisions of the ossicles every year, now reports as many Stacke operations. The technique of the operation is difficult, but with care it may be done with very little more risk to the facial nerve and deeper structures than is inherent in the older operations.

DERMATOLOGY AND SYPHILOLOGY.

UNDER THE CHARGE OF W. L. BAUM, M.D.,

Professor of Dermatology and Syphilology in the Post Graduate Medical School, Chicago,
Fellow of the Chicago Academy of Medicine

Iodide of Potassium in the Treatment of Syphilis —

Morel-Lavallee (*Revue de Thér Méd-Chir*, November, 1895) states that all the world admits the powerful influence exercised by iodide of potassium in the treatment of the tertiary lesions. However, he asks the question: Does it prevent the appearance of tertiary symptoms? Is it always indicated as soon as the secondary appearance has subsided? He draws the following conclusions:

1. Mercury must be the base of the anti-syphilitic treatment. Iodide of potassium, however, constitutes a useful accessory agent.
2. The mercurial treatment must be the initial treatment, must

be given in sufficient doses and sufficiently long to antagonize all syphilitic manifestations, so that the patient may face the future with a relative degree of security

3. A syphilitic case in which the mercurial treatment has been abandoned before the end of the second year is one insufficiently treated (Fournier). It is the same if during these two years the iodides are too often made to take the place of the mercurial treatment, and especially is it true where the iodides have been wholly substituted for mercury—a procedure which, so far as the future of the patient is concerned, is equivalent to almost no treatment at all

4. Mercury has a prophylactic influence against all of the manifestations of syphilis, as proven, for example, by its happy action in the prevention of hereditary infection in the offspring of syphilitic parents

Morel Lavallee criticises unsparingly the so-called methodical or scattered treatment of Fournier. Iodides may be useful, but only as an accessory, it is indicated in the secondary period when the specific treatment causes cephalalgia, arthralgia, or pseudo-rheumatism. During the period of transition sarcocele, unicitis, iritis and psoriasis palmaris develop but here also the treatment must be combined with mercury. It is the same with the malignant types of syphilis, and especially where there is a premature outbreak of tertiary lesions. The tertiary period can be treated with iodides, especially when there are gummata dry tubercular syphilides, and ulcerating syphilides. In cases of absolute intolerance of mercury it is obligatory, for want of a better drug, to have recourse to iodides. Iodism must, however be avoided. In other words, iodine is a therapeutic agent whose action is doubtful in the majority of syphilitic cases and which must not, at any rate, be considered as a substitute for mercury

Treatment of Herpes Zoster —

A Robin (*Bull de l'hér*, October, 1895) claims that, in the treatment of herpes zoster, on the one hand the local manifestations must be treated, and, on the other the neuralgia. Certainly the latter must be dealt with before and during the eruptive stage as the pains usually subside with the eruption. The treatment should be inaugurated by the administration of an alkaline purgative, the sulphate of sodium preferred. In the treatment of the eruption it is essential to maintain a dry state in the affected region. All tonics, therefore, must be avoided. Cotton covered with the

following powder should be placed on the painful region Starch, 60 Gm , oxide of zinc, 20 Gm , camphor powder, 0.33 Gm , powdered opium, 1 Gm

In old people the eruption must be carefully observed, as it is frequently followed by ulceration

For the neuralgia preceding and accompanying the eruption, patient must take four times a day a pill containing extract of stramonium and extract of hyoscyamus, each 0.01 Gm , extract of belladonna, 0.005 Gm Should the pills not produce a marked amelioration of the symptoms, antipyrin can be substituted For neuralgia which persists after the subsidence or disappearance of the eruption, antipyrin should be administered in the form of subcutaneous injection, also subcutaneous injections of the glycerophosphate of sodium may be employed

GENITO-URINARY DISEASES.

UNDER THE CHARGE OF G. FRANK LYDSTON, M.D.,

Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Chicago College of Physicians and Surgeons

The Medical Treatment of a Common Form of Functional Impotence.—

Dr. John Lindsay (*Philadelphia Polyclinic*, Oct. 19, 1895) writes as follows

Every practicing physician has had a case very similar to the following come and ask his advice

A young man, more or less nervous, and presenting signs of anxiety and worry out of all proportion to his condition, will complain to the physician that he is losing his "powers," an extremely important matter from his point of view His condition has rendered him morbid, and at the same time he is keenly sensitive

On making an examination we usually find no disease or malformation affecting his sexual organs, and can therefore place the case as one of functional or false impotence, and not the true or organic form

Taking up the subjective examination, we may learn that the patient's sexual desires are strong, but that premature emissions occur, or perhaps erection is imperfect, or it may be erection has not yet taken place on attempted intercourse In other words, the patient has lost faith in himself The above conditions may have followed after a course of self-abuse, or, what is more likely, after a period of excessive indulgence in sexual intercourse In a city of the size of Philadelphia, frequently the starting-point of his trouble

has been the reading of some pamphlet, with possibly the fascinating title of "Know Thyself Young Man," etc., which has been issued by one of the numerous quacks or charlatans that abound in every large city. Here, from a judicious blending of truth and lies the reader comes perilously near becoming a moral and physical wreck, especially if he interviews the author of said pamphlet and has sufficient of this world's goods to make a few return visits.

Now, in each case we have to deal with a condition in which the sexual apparatus is being constantly excited and irritated, and consequently the reflex centre in the spinal cord is never at rest, an attempt is being made all the time to whip up that which is exhausted. Therefore we should not begin by putting the patient on aphrodisiacs and phosphorus or damiana, but adopt a line of treatment that will soothe and tranquillize him, and stay for a time, at least, his more or less morbid desire to accomplish sexual intercourse. For this purpose in the clinic we frequently prescribe the following mixture, to be taken in water four times a day. Tincture of hyoscyamus, 20 minims, potassium bromide, 20 grains camphor water, sufficient to make $\frac{1}{2}$ fluidounce. After following this plan for two weeks or longer if necessary, and its purpose having been attained, it is then in the case of married men permissible to begin tonic aphrodisiac treatment. A combination of great value in the clinic service is the following to be taken in water four times daily. Strychnine sulphate, $\frac{1}{4}$ grain diluted phosphoric acid, and distilled water, of each 1 fluidrachm.

The above plan of medication in a large group of cases will give very satisfactory results.

The physician must, even in cases of false impotence, study the personal equation in each case and do his best to gain the patient's confidence. In the case of unmarried men it is well to use the opportunity to warn them against the moral and physical risks involved in unchastity and to inform them that a life of continence is the true physiological life.

The Treatment of Gonorrhea in Man —

Dr Ramon Cuiteras in the *College and Clinical Record* says that in his own practice this depends on certain conditions:

1 The stage of inflammation in which the patient presents himself

2 The presence or absence of posterior urethritis

3 The presence or absence of strictures

If the patient is seen in the first stage of a very acute attack

evidencing itself in an abundant discharge and great congestion about the meatus, glans, and prepuce, accompanied by painful micturition, the author usually delays active treatment for a while and tries to make him comfortable. He gives him a diluent, usually one that contains five grains each of the citrate and the bicarbonate of potassium, which dissolves with effervescence, in a glass of water, directing him to take as many as he likes during the twenty-four hours, and at least six. He also puts him on cubebs in teaspoonful doses, every three hours. His bowels are kept open with Rochelle salts, and two hot sitz-baths a day are prescribed. In addition to this, he regulates the diet, cutting off all stimulants, tobacco, pepper, and asparagus, and orders a suspensory bandage to be worn.

This will usually take down the congestion sufficiently in less than three days to allow him to commence astringent injections or hot irrigations.

As, however, by far the majority of cases coming to the writer do not have the very acute symptoms mentioned above, and are suffering from a second or third infection, he is not obliged to resort to the palliative measures just referred to, but puts them on injections or irrigations, accompanied by the diluents already spoken of. Formerly, he began always with hand injections, and did not resort to irrigation until it seemed that the former were not acting efficaciously. At present, if the patient can come often enough, he starts in with mild irrigations, given once a day, accompanying them by a bland and slightly astringent hand injection. If the patient is in a hospital ward, he gives two irrigations a day, and in that case does not think it advisable to use the hand injections in connection with them, but when the irrigations are from twenty-four to seventy-two hours apart, it appears to him that the hand injections materially assist by holding the ground gained through irrigations.

The hand injection should be of the blandest type, as one made from zinc, alum, or lead, dissolved in rose-water. The irrigations should be of solutions of potassium permanganate or silver nitrate. Bichloride-of-mercury solution is sometimes used, but seems to be more irritating than the first two mentioned. If permanganate is used, the writer starts in with 1 5000 solution and increases to 1 2000, if silver nitrate, with 1 8000, running it up as high as 1 2000. When he first began to irrigate, he was in the habit of starting with permanganate and not using the nitrate of silver unless the former failed or did not agree with the patient. Later on, having observed that patients improved more rapidly under the silver irrigations than under permanganate, he began to reverse this order

and use silver first, and permanganate only in those cases which did not improve under silver

His method of irrigating is as follows The patient, having passed his water, lies on his back with the shoulders elevated The douche jar is raised to a height of two feet, and a tube made of glass or soft rubber, is introduced into the urethra as far as the bulb The fluid is then allowed to escape into the urethra, which it irrigates thoroughly escaping by the side of the tube Of the two tubes the glass is preferable, as it is more easily kept clean In sensitive urethras, however the soft rubber retrojecting tube is much preferred by the patient The irrigating fluids should be used as hot as they can be borne

If posterior urethritis develops during treatment, or the patient first appears suffering from an antero posterior inflammation, the author does not give any hand injections, but modifies his method of irrigating and adds to his internal treatment His method of modifying the irrigation is by increasing the height of the douche jar from two to five feet, then when the fluid is running freely through the urethra and escaping along the sides of the catheter, he simply grasps the organ between his thumb and forefinger and compresses the urethra against the tube If the solution now runs into the bladder, it is only necessary to allow it to do so until that viscus is full, but if it does not overcome the "cut off" muscle he directs the patient to strain, as if about to urinate, and then to take a few deep breaths this is usually sufficient to allow the fluid to overcome the muscle and flow into the bladder The patient then urinates it out, thus allowing it to again come in contact with the entire urethra In adding to his internal treatment, the author gives ten drops of belladonna tincture three times a day to overcome the tenesmus and sandalwood oil to modify the urine passing through the canal—beginning with fifteen drops of oil three times a day, and increasing five drops a day as long as it is well borne

In case the preparations of sandalwood oil do not agree with the patient, he often gives other anti blennorrhagics, as cubebs or copaiba He thinks the sandalwood preparations should receive the first consideration, as they do not irritate the digestive and genito-urinary tracts as much as the others

If irrigations do not seem to benefit the posterior urethritis, he leaves off the general treatment of the urethra and gives, locally posterior instillations of nitrate of silver every other day by means of the Uitzmann syringe, beginning with a one grain to the-ounce solution and increasing it gradually in strength

In certain very acute cases of posterior urethritis, especially in individuals who are nervous or "below par," a great deal of inconvenience and suffering is experienced, as the calls to urinate are frequent and imperative and are accompanied by much tenesmus. For these cases he prescribes complete rest, accompanied by hot sitz-baths, rectal enemata of hot water, suppositories of belladonna extract and morphine (one-fourth grain each), Rochelle salts in the morning, and a milk and Vichy diet for a few days, until the symptoms have subsided sufficiently to begin deep irrigations or instillations.

In regard to the treatment of chronic urethritis, or gleet—that is, when the patient has a slight moisture during the day and a drop at the meatus in the morning, and where any indulgence in alcoholics causes an exacerbation of the trouble—the author examines for strictures with a bulbous sound and endoscope. If strictures exist which are new or yielding, he dilates them by means of the Oberlander dilator in easy stages, generally increasing the lumen of the strictured portion of the urethra two millimeters at each treatment, afterward passing sounds of the Otis curve, anointed with equal parts of an ointment of red oxide of mercury and vaselin. If the strictures are hard and tough, or resilient, not seeming to be benefited much by dilatation, he advises internal urethrotomy by the Otis method. After the urethra has a smooth bore, if the gleety discharge continue, the endoscope will usually reveal some localized areas of congestion or inflammation, which are best treated by applications of silver nitrate, from one to twenty grains to the ounce, through this instrument.

In this way the most rebellious cases of chronic urethritis or gleet are cured.

FORENSIC MEDICINE

UNDER THE CHARGE OF M. D. F. WELLS, M. D., J. L. D.,
Dean of the Kent Law School, Chicago

Death from Abscess of the Brain —

An exceedingly interesting medico-legal question, in this relation, is considered editorially in the *American Medico-Surgical Bulletin* of January 18, 1896. The case in brief is as follows:

An apparently healthy man was struck upon the head. The blow caused an incised wound. The wound healed by first intention in three days. On the eighth day after the injury he was discharged from the hospital, apparently well. Eighteen days later

he developed symptoms of cerebral compression and died. There were two large abscesses in the right cerebral hemisphere, as well as smaller abscesses elsewhere in the brain and in the lungs. There were no signs of disease of the scalp, skull bones, nose, or ear, at the autopsy.

The question asked is whether the abscesses were due to the blow upon the head, in which case the person or persons who struck the blow must be held for murder.

A complication in this case was the presence of abscesses in the lungs. Were it not for these, the relation of the brain abscess to the blow on the head would be clear. Now, it is not uncommon for brain abscess to be metastatic in character, and to originate from pulmonary gangrene or pulmonary abscess. It is a fact, too, that cerebral abscess from distant causes is usually multiple, as in this case. Hence, there may have been here a pulmonary disease in the first instance, giving rise as a mere coincidence to the abscesses in the brain about the time of the injury to the head described.

The real question to be decided here is whether the abscesses in the lungs were due to the abscesses in the brain, the contagium being carried thither by metastasis, or to a general septicemic condition as a result of the blow, or whether they had existed before.

While literature is replete with cases of brain abscess due to lung disease and with cases of cerebral and pulmonary abscess due to a general septic condition, we fail to find cited among the best authorities examples of pulmonary abscess consequent upon traumatic cerebral abscess. Under the circumstances, while very likely both the pulmonary and cerebral abscesses were due to the blow upon the head, in the opinion of the writer, still there is no absolute certainty of this being the case. It is a purely theoretical assumption on our part. We do not know what the verdict has been in this particular case, but we may say that no just verdict could under these circumstances be made against the defendants in an action for murder.

The above case well illustrates how soon the latest pathological doctrines may reach a court of law. It seems but yesterday since the questions of infection and metastasis were mere theories, and now they are contributing to the formation of judicial decisions.

Hair Turned from White to Black —

Griffith in the *Journal of Cutaneous and Genito Urinary Diseases*, reports the case of an engineer in the Fire Department of Louisville, age 65 years, who was on duty during the tremendous

fire in January, 1895, for fifteen consecutive hours. From two or three sections of hose near his engine the spray was constantly flying, and he became covered from head to foot with ice. He wore a skull-cap, and a helmet atop of that, so that his head was the warmest part of his body and not at all exposed, though his eyebrows and whiskers became wet and were frozen stiff. The afternoon after the exposure his hair, which had become gray eight years before, and had for three years been white, turned perfectly black. Formerly he was a blonde.

Dr Griffith states that he has known the man for forty years, and that the hair is oily and not in the least dead, in fact, the patient's head has been very carefully scrubbed several times under the supposition the change in color might possibly be due to foreign matter.

The *Medical Age*, December 25, 1895, in commenting upon this exceptional case, says "Numbers of cases have been reported in which the hair has suddenly turned from black to white, but this is the first instance, we believe, known to literature, in which the reverse has occurred. Campagne tells of a woman, 36 years of age, in whom the hair began to blanch on the twenty-third day of a severe fever, and six days later was perfectly white, on the seventh day, however, the color began to darken, and in the course of a week the hair had recovered its original color. Van Harlingen narrates the case of an idiotic epileptic girl of 13 years, who experienced changes in the color of her hair in consonance with her periods of agitation and calmness, sometimes the color was blonde, at other times red, and the variations in shade were great. Falkenheim, also, reports a man of 33, whose hair was variegated, being in irregular portions of the scalp colorless and pigmented. In all cases reported by Wilson the ringed hairs were divided into quite regular bands."

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ORIGINAL ARTICLES

TWO RARE DISLOCATIONS OF THE PATELLA

BY EDMUND ANDREWS M.D. LL.D.

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One of the most singular of all dislocations is that where the patella is thrown half over so as to rest one lateral edge upon the femur while the other projects forward under the skin. It seems almost incredible that the bone could maintain itself in this slippery and insecure position yet the few surgeons who have seen the accident have found the patella very firmly fixed and very difficult to reduce.

The accident is rare and up to the present time I have not been able to find any published report of a dissection made on an unreduced specimen. I made a hasty mention of it some years ago in the *Annals of Anatomy and Surgery*, but the details of the dissection have never appeared in print.

In a railway accident the patient (Case 11962, Andrews' Surgical Record) received several severe injuries, one of which was the dislocation in question. The joint was extended, and the patella was thrown outward just beyond the articular area of the right knee, where it rested its inner edge on the sloping surface of the femur while the outer edge stood sharply outward and forward under the skin. It seemed poised on this slippery surface in the most insecure manner, yet it resisted with firmness my efforts to reduce it. It seemed locked in some mysterious manner to its position. My efforts however, were only momentary, for there were other injuries present necessitating an immediate amputation of the thigh. The operation was therefore performed, and the limb severed with the dislocation still unreduced.

As soon as the patient was properly cared for, I made a dissection of the member. Removing the skin and fat, the mechanism of

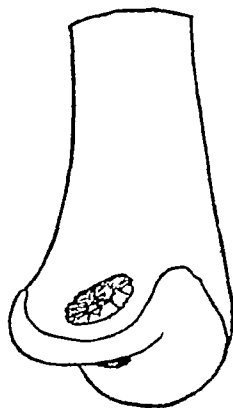


FIG 1 Appearance of the Lower End of the Femur

the luxation was found to be as follows. Just outside the edge of the articular surface of the femur the rather sharp edge of the patella had been driven into the spongy bone of the condyle, making a deep socket an inch long and five-eighths of an inch wide into which it fitted firmly, without any tendency to slip away. Fig 1 shows the socket thus made in the condyle. The edge of the patella resting thus securely, the outer part was braced or "stayed" in position by ligaments and muscles drawing in three directions, just as the bowsprit of a sailing vessel is held firmly by "bobstays" and cordage attached to its

apex and drawing three ways. Fig 2 illustrates my meaning. The inner edge of the patella rests in the socket broken or "jammed" into the condyle. Below is the ligamentum patellæ drawn very tight. V is a portion of the vastus externus muscle, also under great tension. The vastus internus had been torn completely asunder, and is not shown in the cut, but the dotted line R shows the direction of the conjoined tendon of the crureus and rectus muscles, which were in position, but are left out of the cut in order to show the parts behind. All three were drawn into firm tension by the uptilted position of the patella, thus holding it immovable by drawing against each other with great force in three directions, precisely like the arrangement for staying a ship's bowsprit.

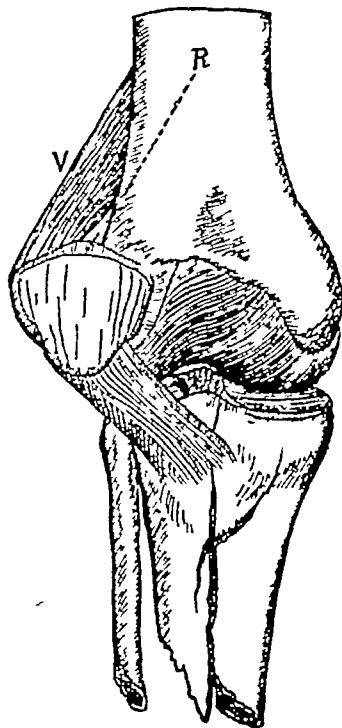


FIG 2 Mechanism of the Dislocation

This dissection seems to me to clear up the mystery as to what fixes the patella so firmly in the singular "edgewise" or "semi-rotary dislocations" of that bone.

I have recently met a milder displacement of the patella of a

different sort. It has always been known, of course that in complete rupture of the quadriceps tendon, flexion of the knee draws the bone downward, just as it does when there is no rupture, but as the bone usually goes up again when the leg is extended, it is not a true displacement and not properly called a dislocation. Hamilton says he has never seen any other downward displacement than the one just described, and accordingly authors do not usually recognize any downward dislocation. For the first time in my experience I have seen an exception. A patient recently met with an accident by which he completely tore off the insertion of the quadriceps femoris. The knee bent under him, drawing the patella downward, and on straightening the limb the patella was found locked in the notch between the femur and the tibia, and refused to move upward. Placing my hand upon it and using some force, I found that the bone resisted my efforts to move it upward. The untorn lateral ligaments attached to its margin seemed to hug it into the notch and thus prevent the reduction. My assistant happening to stand in a more favorable position, I requested him to apply a stronger force, which he did and soon brought the patella up to its place on the front of the femur.

I think this displacement might be properly called a dislocation downward when it is so far locked into the notch as to resist moderate efforts at reduction.

PRESENT STATUS OF OPERATIVE TREATMENT FOR BLADDER-STONE

BY ARTHUR DEAN BEVAN, M D, CHICAGO,

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The author of a well known English text-book on surgery, published sixteen years ago, tells us in his introduction that the art of surgery has about reached its summit of development, that the ground has been covered, and that future advances must be simply in the line of improved technique and minor details. The development since that time must have greatly changed his views.

Brilliant work has been done in operative treatment for stone during this period, but there is still much to be desired, and great advances must be and undoubtedly will be made in the future. It is therefore proper, I believe, in discussing the treatment of bladder-stone, to view the subject from its present status of development and not from the standpoint of a closed chapter.

The three great operations for stone—perineal lithotomy, suprapubic lithotomy, and lithotrity—are old and standard. In the history of medicine we find now one and now the other the vaunted procedure. Improved anatomical knowledge, the introduction of aseptic surgery, improved surgical technique, improved instruments, and careful analyses of thousands of cases done by the various methods, place us to-day in a better position than ever before to estimate the value and limitations of each.

The operation for stone has had a peculiar fascination for surgeons, handed down as it was for centuries from father to son, done in the dark and out of sight of the surgeon's eye, cutting for stone, until very recently, remained a surgical feat and retained a certain theatrical glamor. I remember very well, as a student, seeing Professor Moses Gunn, a great lithotomist, cut for stone in the college clinic, with his back to the audience, the patient in position of lithotomy, the one plunge of the knife, the left index finger in the bladder, the rapid introduction of the forceps, and the removal of the stone. And the operator, with his back still to the audience, would hold the stone aloft with a dramatic sweep of his hand, and then—applause! The dexterity of some of the old lithotomists, and their almost intuitive knowledge of where they were cutting, was marvellous. This dexterity controlled very largely the mortality, and different statistics showed clearly the value of the individual equation.

The day of the brilliant lithotomist is gone, and in his place we find the modern surgeon with less showy but more accurate methods, with better knowledge of the pathological processes, with better data to guide him in his choice of procedures, and with better results.

It is my intention to discuss mainly the operative treatment of stone, and I shall therefore refer but briefly to the general subject of stone formation and diagnosis.

Calculi may form at any point in the urinary tract, and consist of an animal and a mineral part, the first deposited from the urine the second furnished by the mucous membrane. For the formation of stone there must be certain factors present as Antal has emphasized first, the precipitation from the urine of the so-called stone-forming salts second a desquamative or purulent catarrhal process in the mucous membrane from which the organic part of the stone is derived and lastly, the presence of a nucleus.

According to their chemical composition, stones are divided into uric acid and xanthin stones, and carbonate-of-calcium stones. Many stones are mixed, formed of two or more of these substances, deposited often in layers. The nucleus, in a very large proportion of cases, is formed of uric acid crystals in a small minority, of either phosphate salts, oxalate of calcium cystin or a foreign body. The varieties of foreign bodies which have been found encrusted with mineral salts in the bladder are very great. Within the last few years I have seen four cases in which a piece of chewing gum was the nucleus of stone, and I have heard of many more. This fact discovers a very common form of sexual perversion, in which the individual makes a bougie of chewing gum and introduces it into the urethra for purposes of masturbation. A piece of the chewing gum bougie breaks off, or else the entire bougie slips from the fingers of the manipulator and works its way back into the bladder, where it forms the nucleus of stone. Uric acid, oxalic acid and cystin stones are formed in acid urine, phosphatic stones in alkaline urine.

It is a well known fact that certain parts of the country are prolific in stone cases while others are almost exempt. In Kentucky and Tennessee stones are common, in Oregon where I practiced for several years, stone is very rare. Various explanations of this fact have been offered—the character of the water, the kind and amount of alcoholic drinks the character of the food consumed etc—but none are entirely satisfactory. The majority of cases occur under ten years of age the life period from ten to forty five

is comparatively immune, from forty-five to seventy, stone-formation is frequent. Males furnish 95 per cent of the cases. This great disparity is probably due to the anatomical differences between the male and female bladder and urethra, the female bladder expelling masses which in the male would be retained and form nuclei of stone.

One important fact to be remembered is, that vesical calculi can exist for a long time and reach a large size without producing any symptoms of a degree sufficient to cause the patient inconvenience or discomfort. The so-called characteristic symptoms—pain in the glans, pain after urination, sudden stoppage of urine, blood and pus in the urine, etc.—may be entirely absent, or but a single one may be present.

Cystitis, the common but not necessary accompaniment of stone, is due to the infection of the bladder mucous membrane by micro-organisms, either from without, by the introduction of a sound or catheter, or by an extension of an inflammation from the urethra, or infection may occur from the rectum or vagina or through the general circulation. The stone cannot of itself produce cystitis, its presence, however, lowers the resisting forces of the tissues, and in this way favors the lodgment and growth of bacteria.

A positive diagnosis can usually be made either by palpation, the sound, or the cystoscope. Sometimes, however, all of these means fail, and an exploratory incision, either perineal or suprapubic, is required. Bimanual palpation is of value in women and children, but seldom in men. Practically, we rely almost entirely on the sound. For this purpose a small (about No. 8, English) sound, with a very short beak, such as Thompson's stone-reacher, should be employed. I have seen several cases where a stone has been overlooked by well qualified men because they employed the ordinary urethral sound.

There are several practical points to be observed in examining the bladder with a searcher.

1. The examination carries with it a certain amount of danger. It may be followed by serious inflammation of the genito-urinary tract, or even by death. We should endeavor to reduce these dangers to a minimum. The patient should be kept in bed at least twenty-four hours before the examination, and the bladder washed out with boric-acid solution. At the time of the examination the urine should be drawn with a catheter, and the bladder again irrigated with boric-acid solution, which should be allowed to escape, and then two or three ounces more introduced.

2 The amount of fluid in the bladder at the time of the examination is an important point more than two to three ounces makes the finding of a small stone difficult, less than this amount makes the manipulation of the searcher painful to the patient and unsatisfactory to the operator. Often by employing a small amount of fluid an operator can detect a small stone which otherwise might escape detection, and by employing a large amount of fluid he can more distinctly examine the whole bladder-wall and can detect more easily an encysted stone therein.

3 The searcher is now introduced, and every part of the bladder wall examined. If a stone is found an approximate estimate of the size and character may be made, and the presence of one or several calculi can usually be made out. If the patient's urethra and bladder are very sensitive a boric-acid solution containing one-half of one per cent. of cocaine can be used. After the examination the bladder should be again irrigated and the patient kept in bed twenty four hours. If no stone is found, it is well to repeat the examination a few days later with first one, then three, then six ounces of fluid in the bladder.

The observance of these simple rules in the examination is important, and calculated to reduce to a minimum the possibilities of urethral fever, cystitis, epididymitis, etc. The ordinary rough examination without preliminary preparation and antiseptics is to be condemned.

The cystoscope in stone work has but a narrow field of usefulness, limited to very small stones which escape detection by the searcher, and to encysted stones. It is an instrument which, on this account, and also because of its cost and the dexterity and experience required to make an examination with it of value, will never be generally employed.

When all other means of diagnosis have failed, and the symptoms are sufficiently urgent, we can resort to an exploratory median perineal section as employed by Thompson and introduce the finger into the bladder after slowly and carefully dilating the prostate, or, better still, make a supra pubic opening in two sittings a week apart at the first operation expose the bladder and pack the wound with iodoform gauze a week later open and examine the bladder. The risk of sepsis and urinary infiltration are thus avoided.

The treatment of stone must be discussed under three heads (1) Litholysis or dissolving stone, (2) Lithotomy (supra pubic and perineal) cutting for stone and (3) Lithotraxis, crushing stone.

Litholysis, or the dissolving of stone, has been attempted by internal medicine, and by injections into the bladder of solutions containing stone-solvents. The results, however, have been practically negative, and although litholysis presents an attractive field for experimentation, it offers us to-day nothing of practical value.

Lithotomy may be perineal or supra-pubic. The perineal operations are lateral and median. For years the lateral perineal lithotomy has been the favorite operation. It is to-day, however, practically discarded by authorities on stone work—and this is a point which I desire to especially emphasize in this paper, because the operation is still described and sometimes advocated in many of our text-books, and it is the one usually selected by the general practitioner who has not carefully followed this subject. Why has it been discarded? Because it is an operation done in the dark—a large part of the wound is out of sight of the surgeon's eye and beyond the control of the surgeon's instruments, because in this deep part of the wound dangerous and fatal hemorrhage can occur, because the prostate and bladder may be too extensively cut, and urinary infiltration and sepsis result, because there is danger of permanent loss of sexual power from injury to the ejaculatory ducts, and last and principally, because the surgeon has safer and better means at his disposal. Ruling out of consideration, therefore, lateral lithotomy, there remain three operations to consider in the treatment of stone: median lithotomy, supra-pubic lithotomy, and litholapaxy.

Before discussing further the surgery of stone, it is important to refer to the preparatory treatment, which should never, except in emergency cases, be omitted. The patient should be put in bed for a week, once or twice a day the bladder should be irrigated with boric-acid solution, not more than four ounces being introduced at one time, the bowels should be kept open, light diet given, and the patient put upon small doses of boric acid and salol. This week's rest in bed and preparatory treatment is of the greatest value, and modifies materially the patient's prospects.

By median lithotomy I do not mean the old operation of that name, in which the prostate was divided, but the operation as done by Thompson. With a grooved staff in the urethra, an incision is made two inches in length in the raphe of the perineum between the scrotum and anus. After dividing the raphe in the skin, the raphe between the two halves of the accelerator urinæ is divided, then the bulb of the urethra is opened. Some operators dissect up the bulb of the urethra, but this procedure is not advisable. The

clean division of this body damages no structures of importance, the hemorrhage can be readily controlled, and there is less danger of sepsis. The entire incision can be inspected and if there are any bleeding points they should be picked up with the artery forceps and ligated. After the hemorrhage—which is, as a rule, slight—has been checked, the little finger is well oiled and introduced into the urethra, the prostate slowly dilated, and the finger pushed into the bladder. Next the index finger is slowly introduced and the interior of the bladder examined. If the stone is small, the stone forceps are introduced and it is removed. If the stone is large, the prostate is slowly dilated widely with the lithotomy forceps, or with an instrument made like a glove stretcher—in this way stones an inch in diameter can be safely and easily removed. No division of the prostate should be made, if the stone is too large to be removed, it can, if soft be crushed with the stone forceps, or, grasping it firmly with the forceps a chisel can be introduced between the blades and given a sharp blow with a mallet as it comes in contact with the stone. I have in this way fractured and removed a stone weighing more than three ounces: an uninterrupted and complete cure resulted. This seemingly crude and simple procedure has been extensively done, or a lithotrite can be employed through the perineal opening. After carefully removing all the fragments the bladder is washed out with boric acid solution, a rubber tube the size of the little finger is introduced the space between the tube and wound packed with iodoform gauze, and the wound dressed. The rubber tube in the bladder is united to a piece of tubing of the same size, four feet long, which is allowed to hang over the side of the bed to a vessel to receive the urine. Once a day the bladder is washed out with boric acid solution: the rubber tube removed at the end of five or ten days, the wound closing usually in from two to four weeks. A median lithotomy done in this way has much to recommend it. The entire incision is visible can be easily controlled, no important structures are involved in the incision and good drainage can be obtained. The dangers—which can however be easily avoided—are injury to the rectum which has occurred at the hands of men not cognizant of this horrible danger and too hasty and forcible dilatation of the prostate. The operation is particularly useful in the case of small stones with accompanying cystitis. The mortality from the operation is small.

Suprapubic cystotomy has since the general introduction of aseptic surgery become a standard procedure. In pre-antiseptic days the mortality from this operation was very high and it was

In cases of stones less than an inch in diameter, with existing kidney disease, or a severe degree of cystitis, or stricture which cannot be readily dilated to permit litholapaxy, the median operation should be employed, a condition which would contra-indicate its employment is very great enlargement of the prostate

In very large stones and in irreducible stones so large that median lithotomy cannot be employed, but where there is an indication for drainage, supra-pubic cystotomy is called for, also in male children where litholapaxy cannot be carried out on account of small size of the urethra, also in cases of great enlargement of prostate with medium-sized stones and an indication for drainage

Stone in the female can be dismissed with few words. Stones of less than an inch diameter can be removed after dilating the urethra with the fingers and thumb or with Kelley's dilators, larger ones, after dilating the urethra, can be crushed with the lithotrite, and stones so large that they cannot be crushed may be dealt with by an incision into the bladder through the vaginal wall, or by supra-pubic lithotomy

THE SURGICAL TREATMENT OF INFANTILE PARALYSIS BY ARTHRODESIS

BY CARL EPOCH, M.D.

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Until recently, all that was accomplished in the treatment of infantile paralysis was to enable the patient to hobble about supported by braces or heavy apparatus. During the last few years, particularly on the recommendation of Karewski, attempts have been made to treat these cases surgically. This departure has proven so successful that many unfortunate patients prefer operation to wearing heavy support braces. The operation, which is called arthrodesis, consists essentially in the destruction of a joint, producing ankylosis, or at least very restricted movement. The following case affords so good an illustration of the usefulness of the operation that I will describe it in detail, concluding with an enumeration of the indications and contra indications.

R. D.—, 15 years of age, was admitted to the Cook County Hospital for the purpose of securing a supporting brace for her paralyzed limb. Up to the age of four years she was a perfectly healthy child, she then became sick, with the symptoms of acute poliomyelitis, which resulted in paralysis of both limbs. After about one year's treatment with electricity, massage and other methods, she improved so much as to be able to use her left lower extremity, while the right leg remained paralyzed except that the adductors and the psoas muscle could be used to a certain degree—enough to enable her to throw the leg forward and inward but she was never able to make any firm premeditated movement. Extensive passive movements could be made the leg could be placed around the neck or extended backward to bring the sole in contact with the head. While the patient was walking on crutches the leg would swing like a flail. During the following years it did not improve in the slightest degree, but became atrophic and slightly flexed. She was obliged to use a crutch all the time. The changes in the pelvis and vertebral column that are usual to cases of infantile paralysis i. e. scoliosis and incongruity of the pelvis, developed in this case also. It was in this condition that the young girl who was very bright and otherwise well developed, came under observation.

The case seemed to me a suitable one for treatment by operation inasmuch as the slight but persistent action of the adductors and flexors allowed of the patient's throwing the limb forward. In

order to convince myself that she would be able to walk on a stiff leg, the limb was put in a plaster-of-paris cast. The slight contracture caused a good deal of pain when the limb was straightened, but she could, nevertheless, walk without the aid of a crutch. This being satisfactory, I decided to make the limb permanently stiff.

On November 16, 1895, the operation of arthrectomy of the knee-joint was performed. In consequence of the long-standing contracture the bones had become deformed, and in order to have the limb perfectly straight it was necessary to remove quite a portion of the condyles anteriorly. Otherwise the operation was a typical resection. The result was excellent. Four weeks after the operation the leg was put in a water-glass bandage, so that the patient might walk in this very light dressing, and six weeks after the operation she was discharged with a high shoe.

The operation which I first thought of performing on her ankle-joints was unnecessary, as she could walk firmly with her ankylosed knee.

This patient was exhibited at a meeting of the Chicago Medical Society, January 20. She was then able to walk without support, for the first time in eleven years.

Since that time I have had occasion to observe several other cases, but the time which has elapsed since treatment is too short to permit me to make a report. From this one case, however, I have gained the conviction that arthrodesis is a justifiable and very useful operation, by which patients are enabled to use their limbs without the aid of crutches or braces. The indications, however, are very restricted, since experience teaches that by careful and untiring care many cases of infantile paralysis improve so greatly in the course of time that the muscles acquire some activity. In a case like this, however, where no change for the better had taken place in eleven years, it could not be expected that treatment would enable the child to recover the use of the limb. Furthermore, the small groups of muscles, adductors and psoas, unless trained, become atrophic, and it would not have been possible for the limb to be thrown forward had not her intelligence led her to practice the movement and preserve these muscles. As a first indication, I would say that the operation should be done only after all hope is abandoned that the limb will become useful by the return of muscular action. Another condition is that power must be preserved in some muscles at least, otherwise the stiffness of the knee and ankle will be of no advantage. Fortunately, in most cases, such a degree of muscular power is retained.

This method of treatment can be used in cases where the feet alone are paralyzed. In such cases Karewski and others have had good results in both limbs by producing ankylosis, which, however, gradually yielded to restricted motion—motion at a small angle, so that patients were able to walk firmly on their feet without braces.

The operation would be contra-indicated shortly after an acute attack of poliomyelitis.

The literature on this subject is already quite extensive, a number of cases having been operated upon in France, Germany and this country. The results are uniformly good. Thus, Karasiewicz reports among eighty-seven cases eighty-four satisfactory results.¹ When we think that many of these wretched children are not able to buy good braces, or to keep them in order, but are obliged to hobble about on crutches all their lives developing contractures, decubitus, and deformities of pelvis and spine, we must admit that this operation has proven a godsend in the treatment of infantile paralysis and that it deserves to be placed on the same level with other plastic operations. The object is not to restore form, but to restore the function (*la chose la plus principale pour la classe ouvrière*—Verneuil) and make the unfortunates useful members of society.

¹ *Centralbl. für Chir.* 1904, p. 110.

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¹ *Centralbl. für Chir.*, 1894, p. 115.

AMPUTATION FOR DIABETIC GANGRENE ¹

BY A. M. CARTLEDGE, M.D.,

Professor of the Principles and Practice of Surgery and Clinical Surgery in the Louisville Medical College, etc., Louisville, Ky

A lady, 67 years of age, twelve years ago suffered an attack of hemiplegia of the left side, according to the statement of her physician. She recovered from the attack and was, her family thought, in fair health. Two weeks ago, while walking on the street, she was seized with severe pain in the right instep. A physician was called, who said he could not determine any inflammation or anything which would cause the trouble, but as the woman complained of excruciating pain in her instep and sole, he gave her a hypodermatic injection of morphine. Next day he found the patient still suffering intense pain, a little blister about the size of a nickel having appeared on the inner aspect of the foot near the sole. This blister broke, and the surface beneath granulated and healed. From this on there appeared numerous little blisters over the dorsal aspect of the foot down to the toes, a hemorrhage occurred between the great and the next toe, the small toe then became involved, presenting all the evidences of gangrene.

That was about the state of affairs when I saw the patient last Wednesday for the first time. She still suffered an agonizing, burning pain, extending to the ankle. I examined her urine at once and found it loaded with sugar, and investigation showed that she had passed the normal quantity up to that night. I diagnosed the case as diabetic gangrene, which it undoubtedly was, but the suddenness of its occurrence was rather unusual, as most cases of diabetic gangrene are prolonged. There was no evidence of gangrene within $2\frac{1}{2}$ inches of the ankle. There had been no secondary infection, nor any breaking down of the gangrenous spots, there was no inflammatory condition, the pulse was about 80, temperature 98.5° , no gangrenous sepsis, nor any of the ordinary symptoms of sapremia, no edema or tumefaction of the affected area, and the toes and foot could be pressed without breaking the skin. It was one of those cases in which surgical interference might be indicated.

Surgical literature informs us that several cases of diabetic gangrene have been operated upon with good results during the early stages, on the other hand, many cases have been subjected to operation with no beneficial effect whatsoever. I laid the matter clearly

¹ Read before the Louisville Surgical Society

before the family, telling them that the patient would certainly die if the leg was not amputated, and she might die if it was but that cases had been operated upon which recovered, and I was willing to try it in this instance. They consented to the operation. On account of the woman's age, the clear limitation of the disease, and her general good condition, I did not think I was justified in going into the thigh, as the gangrenous area did not extend as high as the ankle, being indeed mostly confined to the toes. I would not have thought of operating at all had there been secondary infection. I amputated the leg at about the junction of the middle and lower thirds of the tibia, and everything progressed well. After taking off the Esmarch there was surprisingly little capillary oozing, the tibial vessels were atheromatous so that it was really a mixed case. I made some little rolls of tissue to keep the ligature from cutting through the stump vessels, and no blood was lost. I closed the skin wound without drainage, using the Halstead stitch. The stump was then carefully dressed in the usual manner. The pulse was 70 after the operation. The woman was greatly relieved, and expressed herself as delighted that she was free from the intense burning pain she had previously suffered. This was on Thursday at 9 o'clock in the morning. She spent a comfortable night Thursday. Friday morning she said there was some pain in her leg. I took off the dressing and could see nothing to account for the pain, there being no evidence of great tension. I concluded however, to loosen the cotton and make a slight opening, thinking the pain might be due to a stitch. This was done and only a few drops of bloody serum came out. I then immediately replaced the dressing. The patient began that morning to complain of burning pain in the stump, which increased and by night was most intense. I went back that night and found on the upper flap a place as large as a silver dollar of a characteristic wine color. The burning pain continued the patient began to sink, and died Saturday night with marked gangrene of both flaps.

This was a typical case of diabetic gangrene with no secondary infection. I report the case giving the full history and ultimate result, it being the first case upon which I have operated for diabetic gangrene.

DISCUSSION

Dr A M Vance Eight years ago I read a paper before the Louisville Medico-Chirurgical Society upon the subject of surgery in diabetic patients, reporting several cases, and taking the ground

that I would rather operate in any other dyscrasia. Since then I have seen one case of diabetic gangrene in a very fat woman. She lost four toes, but finally recovered. I believe that very few of these cases recover, although surgeons in foreign countries have reported several cases in which entire recovery took place after amputation.

Dr W L Rodman. Two years ago a very distinguished London surgeon delivered an annual lecture upon this subject, in which he took very positive ground that in all cases of diabetic gangrene involving any part of the foot, amputation should be performed above the knee—that nothing else promised anything. I think the case Dr Cartledge reports should have been amputated above the knee for another reason: he states there was calcareous degeneration of the blood-vessels, and this in itself is sufficient reason to go above the knee, because we know the tibial vessels are the first to suffer from calcareous deposit. It is true that even high amputation in these cases promises very little, as they nearly all die, but this is certainly the only substantial hope we have.

Dr Jas S Chenoweth. I saw a case 2½ years ago that will be of some interest in this connection. The patient was a lady aged 40 years. When I first saw her she had a gangrenous blister on the side of the big toe, the result of irritation from an ingrowing toe-nail which had been treated for a long time by one of the "corn specialists" of this city. She was a very large, fat woman, and an exceedingly unpromising subject. At that time she was passing enormous quantities of urine, and I think the specific gravity of it was something over 1.040. Everything looked very discouraging, but after getting an accurate history of the case I became satisfied she had been the subject of diabetes for a number of years, and had been in coma at one time, although the nature of the trouble had not been recognized, nor had an examination been made of the urine, and I was a little more hopeful in regard to the case from the fact that she had recovered from the previous attacks without any treatment especially directed to the diabetic condition. I put her upon codeia and a very strict diet, and, somewhat to my surprise, the blister on her toe disappeared, complete healing taking place. The specific gravity of her urine was reduced to 1.032, but I was never able to get it below 1.030, even upon the strictest diet. She was very heavy, and could not wear a shoe and walk upon her foot without pressing the nail into the flesh. I became satisfied that I could not do as much harm with a clean knife as was being done by the toe-nail, and after maintaining a strict diet for some time, the

specific gravity of her urine remaining 1.032, I operated upon one side of the big toe nail, the one that had originally been the cause of the trouble. There was no disturbance following this little operation, and a few days afterwards I cut out the other side of the same nail. The flesh rolled up again, of course, within six or eight months, and the operation had to be repeated. I operated upon both toes and both sides until she had only a little strip of nail through the centre. Every time before operating I took the precaution to examine the urine carefully to see that the specific gravity was low, and if not it was reduced with codeia and proper dieting before touching the foot. In addition to this I took every precaution against infection of the wounds. No trouble followed any of the operations until the last time, which was about a month ago, when she insisted that I cut both sides of the toe at one time, which I had never done before. I refused to do this, and it was fortunate that I did. Shortly after the last operation the foot began to swell, and she has had considerable pain in that foot and leg, and for four or five days the case looked very unfavorable. The swelling has since subsided, pain is no longer severe and the wounds have nearly healed. When this case first came under my observation I looked up the subject very carefully, and believe that the trouble is a nervous form of diabetes, that such may often be greatly benefited by surgical interference—that they ought to be kept upon a strict diet and treatment with codeia or other remedies best suited to the individual case, for a month at least before any operative measures are instituted. I do not believe that operative treatment in other forms of diabetes—that is, other than nervous—often promises very much.

I simply report the above as being one typical case of so called nervous diabetes successfully treated by surgical means.

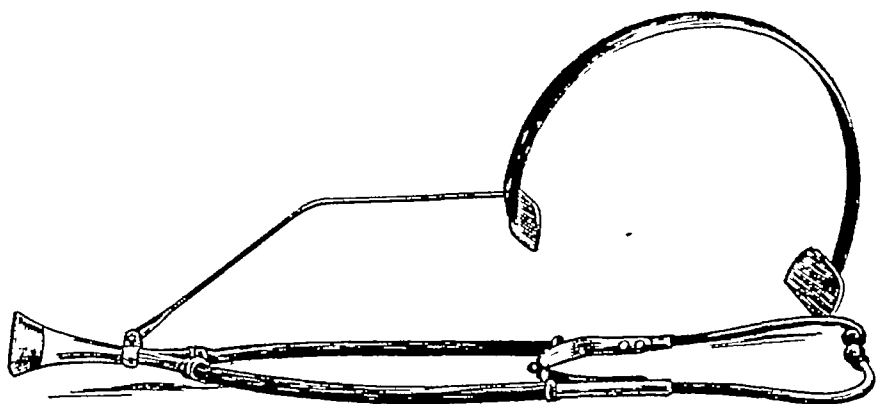
AN IMPROVED STETHOSCOPE, FOR STETHOSCOPIC PERCUSSION.

BY A. R. MITCHELL, M D, LINCOLN, NEB

The use of the stethoscope as an aid in diagnosis is one of the commonplaces. Strange as it may appear, however, few even among the more eminent in the profession have applied the simple laws of sound-transmission by percussion through the stethoscope, and on these occasions a third hand has been required, either to direct or steady it, or to make percussion while the operator directed the instrument.

I am not aware that any device has ever been suggested to hold the instrument and at the same time increase the efficiency of the stethoscope by intensifying the sounds through the medium of a solid metallic rod and close-fitting plates. That sounds transmitted through the stethoscope, supported by this mechanical device, are clearer and more intense, needs only the test of actual trial to demonstrate. How much of the effect is due to the rod and plates, and how much to the complete removal of extraneous sounds, has not been shown, but the fact remains that sounds are intensified.

The chief use of the appliance is in outlining, by percussion, the various organs of the body, or abnormal growths. One who has never applied percussion aided by the stethoscope has but a faint conception of its value. A fair trial will convince the most skept-



tical. Have the patient or an assistant hold the bell of a stethoscope firmly over the heart, liver, spleen, or other accessible organ, while percussion is made towards its border. As the margin of the solid organ is reached, the sounds become clear, distinct, and higher-pitched, so much so as to be almost startling at times. The slightest

deviation of position, size or form is readily detected and may be accurately outlined upon the surface

The simple device I have constructed can be attached to any instrument, but the beautiful little stethoscope shown in the cut makes it much pleasanter to use, on account of its lightness. Near the sound receiving end of the stethoscope is a clamp with a set screw, which makes a joint that can be moved freely or fixed in any desired position. A solid wire rod, beginning at the clamp, is attached to the head piece by a thread loosely fitted, so that it may be turned laterally if desired. The head piece consists of a light spring attached to two plates, one of which rests upon the forehead and the other upon the occiput. The whole device is very simple, and when once tried will become as indispensable as the stethoscope itself.

In using the instrument, the hand of the operator does not touch it. It is moved by a slight inclination of the head, while both hands remain free for percussion. Sufficient pressure is made from the forehead to steady the instrument, and at the same time bring the plates firmly in contact with the head, thus securing an additional means of sound conduction.

TRAINING AND ENVIRONMENT AS CORRECTIVES OF DEGENERACY, AS ILLUSTRATED BY J. M. W. TURNER AND MARGARET FULLER¹

BY HARRIET C. B. ALEXANDER, B. A., M. D.,
Fellow of the Chicago Academy of Medicine

The physician is but too apt to view degeneracy, not from the biological standpoint of Morel, which the practical acceptance of the doctrine of evolution has made dominant, but from the pathological teratological defect, although it may produce not only secondary biochemical but organic change, is not identical with these, but often merely expresses a tendency to functional disorder, correctable by environment and training. The forces summed up in natural selection so act on the structure of an organism as to keep it *in statu quo*, to elaborate it, or to diminish the complexity of its structure.²

Degeneration is, therefore, a gradual change in structure whereby an animal becomes adapted to less varied and less complex conditions. In degeneration there is suppression of form corresponding to cessation of work, elaboration of some one organ usually accompanies degeneracy in all the others. Hence, contrary to the usual medical opinion, the race of a degenerate does not necessarily die out, but it so departs from the type that this dies out. Degenerates, as a rule, tend to be parasitic or semi-parasitic. Indeed, the parasitic state is necessary for their survival as the fittest. This is excellently illustrated in the degenerate spider (*Dermodex follicularum*) inhabiting the skin of man. Should man become extinct, this race of spiders would disappear. Sexual selection would operate here as elsewhere in evolution. The female, as a rule, is true to the type, the male (as in the barnacles) becomes a mere parasite on the female, though exceptionally the reverse occurs.

What is true of the lower animals is peculiarly true of the more complex nervous system of man.

In the infant, a being wrapped up in the instinct of self-preservation, the primary ego is predominant and the child is an egotistic parasite.³ As development goes on, this standpoint is passed, conscience assumes its priority, the fore brain acts as a check on the purely vegetative functions, and the secondary ego assumes precedence over the primary one. This is the general feature of civiliza-

¹ Read before the Chicago Academy of Medicine March 13, 1896.

² Ray, Lancaster.

³ Degeneracy.

tion If this inhibition be weakened or disordered, predominance of the natural instincts occurs, and when totally lost the individual opposes the ethical order of the race—he is a parasite of the worst kind who lives on his host and destroys him in so doing Egotism may vary from this extreme to that of the genius who pleads the baby act of eccentricity as an excuse for excess¹ The last, from a biological standpoint, according to Huxley's logical opinion, stands in the same position as a "sport" among animals and plants, and is a product of that variability which is the postulate of selection both natural and artificial. On the general ground that a strong and therefore markedly abnormal variety is *ipso facto* not likely to be so well in harmony with existing conditions as the normal standard (which has been brought to what it is largely by the operation of those conditions), a large proportion of genius "sports" are likely to come to grief physically and socially Intensity of feeling, a condition of genius, is especially liable to run into insanity Hyper trophy in one place is equivalent to atrophy elsewhere

As I pointed out four years ago,² removal of inhibitions does not account for the appearance of art, literature and mechanical powers in the insane hitherto destitute of them Normal emotional exaltation is in excess in hypomania and acute stages of mania or allied states of other psychoses Many an artist, littérateur or mechanical genius finds that an increased cerebral supply of oxygen increases his invention, such increased supply underlies the psychoses mentioned Insane conceptions rapidly arise under such conditions and from their very rapidity of origin weaken and even annihilate each other, but the fittest of them under certain circumstances survive and are as truly creative as the allied creations of artistic literati and mechanics The egotistic mental background generally checks development of these creations, which, however, occasionally survive under proper insane hospital discipline that tends to crush delusional factors That aid can thus be given these tendencies is a fact that demonstrates their kinship to the normal rather than to that predominant primary ego constituting the abnormal

Since, even on the Lombrosian view the genius is nearer to the normal than the lunatic, the effect of environment is demonstrably greater The genius, along with the whole generation of which he forms a part along with its institutions, language, manners, and its multitudinous arts and appliances, is a resultant The genius

¹ Psychiatry

² *Alienist and Neurologist* 1892.

depends upon the long series of complex influences which have produced the race in which he appears and the social state into which the race has grown. All these changes, of which he is the proximate initiator, have their chief causes in the generation¹ he is descended from.

With all Ruskin's² teleological bias he is forced to admit that much artistic intellect is daily lost in other avocations. Generally the temper which would make an admirable artist is humble and observant, capable of interest in little things, and of entertaining itself pleasantly in the dulllest circumstances. Suppose, added to these characters, a steady conscientiousness which seeks to do its duty wherever it may be placed, and the power denied to few artistic minds of ingenious invention in almost any practical department of human skill, and it can hardly be doubted that the very humility and conscientiousness which would have perfected the painter have in many instances prevented their possessor from becoming one. In the quiet life of steady craftsmen, sagacious manufacturers and uncomplaining clerks may frequently be concealed more genius than ever is raised to the direction of public work or to be the mark of public praise.

The principle thus enunciated lights up the gloom of the ordinary pessimistic view of degeneracy with the hope that the neurons of the degenerate may be trained.

"Till within
The twilight mazes of his brain
(Like embryos within the womb)
Thought pushes feelers through the gloom" ³

As degeneracy is a process of evolution leading to alteration of form because of cessation of inhibitions in certain directions resultant on diminished work, it logically follows that since diminished functioning precedes change of structure, increased functioning must check the change of structure in its biochemical stage. Nay, more, it is evident that the structural elaboration due to degeneracy may be retained while the degenerate structures resume their functions and the degenerate race rank higher in evolution because of the utilization of the beneficial variation due to degeneracy. The influence of this principle is increased by the fact that the vast majority of the children of degenerates exhibit a *tendency* to degeneracy rather than degeneracy itself.

¹ Spencer Principles of Sociology

² Ruskin Modern Painters

³ Mathilde Blind

As a contribution to this question I present the contrasted lives of J M W Turner¹ and Margaret Fuller² as illustrating the powerful influence of training and environment on two careers congenitally stamped with degeneracy

Lombroso could hardly wish for more complete demonstration of his doctrine anent genius than that seemingly afforded by J M W Turner who, according to Nisbet was intellectually little above an idiot, and in whom the only moral characteristic in excess was avarice He was saving in his pence and haggled with dealers Otherwise he fell infinitely below mediocrity The mastery of English grammar was beyond him He could never write or speak like an educated person while his manners were slovenly, unconciliatory, boorish in the extreme When he attempted to explain himself his words were gibberish Of the following sample of Turner's philosophical observations Nisbet defies the reader to make sense

"They wrong virtue enduring difficulties or worth in the bare imitation of nature all offers received in the same brain but where these attempts rise above mediocrity it would surely not be little sacrifice to those who perceive the value of the success to foster it by terms as cordial that cannot look so easy a way as those spoken or convey doubts to the expecting individual For as the line that unites the beautiful to grace and these offerings forming a new style not that soul can guess as ethics Teach them of both but many serve as the body and the soul and but presume more as the beacon to the head land which would be a warning to the anger of mannerism and the disgustful

This strangely muddled brain appears to have had some occasional stirring of the poetic sense, notwithstanding bad spelling and defective grammar Turner appealed to the muses "Lead me along," he sighed in one passage, 'with thy harmonious ' verse The result was always ludicrous Much of his poetry is sheer nonsense, like the following stanza

' If then my ardent love of thee is said with truth
Agents the demolition of thy house foresooth
Broke through the trammel doubts and you my rhyme
Roll in to being since that fatal time

His eccentricities were of the insane order When MacIise called to tell him of Haydon's suicide Turner scarcely stopped painting, but merely growled out between his teeth 'He stabbed his mother, he stabbed his mother "Good heavens!" said

¹ I have made large use of Morehouse (Life of Turner) and Memoirs of Margaret Fuller (Oswell)

² Insanity of Genius

Maclise, so excited that he was prepared for any new horror, "you don't mean to say, Turner, that Haydon ever committed a crime so terrible?" Turner made no reply, but slowly shouted "He stabbed his mother, he stabbed his mother" Hamerton supposes that Turner meant that Haydon had injured the Royal Academy Nisbet believes that these words were the "tic" of the lunatic

In Nisbet's opinion Turner's genius was of slow development, and would never have been recognized had there not arisen an eminent critic who could see visions of beauty in canvases which to the uneducated eye present inchoate masses of color Even Morehouse, free from the degeneracy bias of Nisbet, has to admit that of Turner's mind and character apart from his art not much can be said in praise While mentally not of a very high order except in sensibility and perception, he showed now and then capacities which might have been turned to good account by more generous training His jokes were mainly practical There are few of his witticisms worth record His poetry, generally miserable, here and there contains a fine expression But his wit and what is good in his poetry are connected with his art He never said aught worth recording about anything else The few good bits in his poetry are reflections of pictorial images The utter helplessness of his mind when he tried to put his reasoning into words has just been illustrated His lectures on perspective were failures Akin to the most divinely gifted poets by his supreme pictorial imagination, Turner also seems on the other side to have been related to beings whose reasoning faculty was less than human When we look at such pictures as "Crossing the Brook," "The Fighting Temeraire," "Ulysses and Polyphemus," we seem in presence of a mind as sensitive as Keats', as tender as Goldsmith's, and as penetrative as Shelley's When we read of the dirty discomfort of his home and of the difficulty with which access was obtained to his presence—how even his most intimate friends were not admitted to his confidence—we can only think of a hedgehog which, its offensive powers being limited, is warned by nature to live in a hole and roll itself up into a ball of spikes at the approach of strangers

Tried by the psychiatric test of its origin and early environment, the genius of Turner appears of morbid origin To a man who was seemingly cockney of the cockneys, trained to a trade peculiarly prosaic in popular estimation, and his insane wife, was born the greatest English landscape-painter From dull dead Cockneyville, Philistia seemingly, sprang a scion of Bohemia Here

certainly seems to appear the out of accord with environment test of degeneracy

Turner's father was a dwarfish man, with oblique convergent eyes, microcephalic head, parrot nose, Morel ears, and protruding chin. As a barber he was professionally loquacious. The only praise he ever gave his son was for saving halfpence. He used to stretch his son's canvases and varnish his pictures. Turner was in the habit of exhibiting privately unsold pictures, this exhibition was early dignified as the Turner Gallery, and this gallery Turner's father attended, showing in visitors, etc. When they stayed at Twickenham he came up to town every morning to open it. The cost of this weighed upon his spirits until he induced a market gardener for a glass of gin a day to bring him up on top of his vegetables.

The mother, Mary Turner exhibited in her family relations that singular mixture of social position so often present in families of degenerates. Sprung from the old English family which gave birth to the traveler and botanist Shaw, she was sister to a butcher, yet sister in law to a London vicar of the Church of England. Her mental and physical characteristics were those of degenerates. She was dwarfish in stature, masculine in appearance, fiercely ungovernable in temper, and became demonstrably and incurably insane when her son had attained his thirtieth year.

Turner was a delicate child who required frequent country visits to keep him in health. The few details extant of these periods of illness point to their neuropathic character. Precocity, that early mental stigma of degeneracy, appeared in Turner, who showed his powers by drawing at the age of four a coat of arms. At nine years he drew Margate Church. While with his Brentford uncle because of weakness which required change of air, he attended his first school and drew birds, flowers, and trees. His school fellows sympathizing with his taste, often did his "sums" for him while he pursued his bent. Very soon after this he began to make drawings. Some of his colored copies of engravings were offered for sale in his father's window. His father had intended him to be a barber but, struck with his talent for drawing determined that he should be a painter. He delighted in going to field and river to sketch. All early drawings, however including those purchased at his father's shop, are of buildings. There is nothing in them about those of any clever boy.

In 1785 Turner who had been taught reading but not writing by his father, went to his first school. About 1787 he was sent to

floral drawing-master, in 1788 to a Margate art school, in 1789 to a perspective draughtsman, to an architect, to the Royal Academy school, and to a drawing-school. During this time he was employed in making drawings to sell, in coloring prints for engraver, print-seller, and miniature-painter, in sketching with Girtin, in making drawings for Dr Monro, and washing backgrounds for architects. Turner's pleasures and habits were and remained those of the British shop-keeping class. Even till the end of his career he, after painting till Saturday night, would put by his work and set off to some low sailor den to wallow till Monday summoned him to another week. In the late eighteenth and early nineteenth century such pleasures were also those of the British aristocracy headed by the Prince Regent. From these coarse tendencies, common then to shop-keeper and peer alike, sprang the irregular family life so powerfully depicted in Turner's portrait by Miss Kingsley in the "Wages of Sin," and so peculiarly destructive there to the idealized artist. From these also occurred later a pathetic tragedy. He had been missing for a week when an accident revealed his dwelling-place, where he was found alone and dying. He died the next day.

Excuses have been made for Turner's ungardly habits on the score of the nobleness of mind shown in his will. He is said to have denied himself when living to make old artists comfortable after his death. There is no evidence for this. When he was brought by the death of friends to realize that he could not take his property with him when he died, he disposed of it but where did the bulk go? Not to his nearest kin, whom he had neglected all his life, fifty pounds was enough for uncles, and twenty-five for their eldest sons. Not to women who had devoted themselves to him or to his children, annuities of ten and fifty pounds were enough for them. But for the perpetuation of his name. The will was so confused that courts were unable to decide what Turner really wanted. After years of litigation, during which much was wasted in legal expenses, a compromise was effected.

Such a history seemingly demonstrates one instance in which genius, independently of all training, despite all obstacles, including a hostile environment, forced itself to the front. No true alienist finds necessary disproof of this in Ruskin's glowing claim that "Turner was glorious in conception, unfathomable in knowledge, solitary in power with the elements waiting upon his will, sent as God's prophet to reveal to men the mysteries of the Universe like the great angel of the Apocalypse, clothed in clouds, and with the stars and sun in his hand."

Analysis, however, destroys the pessimistic fatalistic lesson seemingly inevitable from Turner's career. It reveals both evil and beautiful effects of training and environment, and not merely the weirdness of degeneracy. Even in the Turner ancestry appear healthy atavistic potentialities. The traveler Shaw had an artistic sense. Not in London, but in Devon (that prehistoric home of the pigmy race whose love of beauty survived in the Dordogne caves and in fairy folk lore), originated the Turners whose stature and appearance recall that vanished race. The artistic tendency which cropped out in a paternal cousin proves that the love of beauty survived in the Turner race, despite the cockney. Popular opinion to the contrary notwithstanding, barbering, as history shows, is not necessarily philistine in its effects. Ambrose Paré, the reformer of surgery, was a barber. The father of Schiller, a barber, became a military surgeon and subsequently a landscape gardener and botanist.

The trade of Turner's father brought about an environment which tended at once to plunge the boy into an art atmosphere and to raise the father's estimation of art. Among those shaved by Turner was the artist Stothard. In the immediate vicinity of the barber shop were an art academy, a society of artists, and several studios. There is hence no mystery about the source of Turner's art tendencies which so puzzle Nisbet. Degenerate in appearance as Turner's father was, he was anything but hostile to art, and could make a pecuniary sacrifice to further his son's prospects. He refused to allow him to become the apprentice of an architect for nothing, and paid a better one for his apprenticeship. Educational cramming only in the art direction inevitably incapacitated Turner for otherwise assimilating knowledge.

It was not from mental peculiarity that he spoke and wrote like a dunce. He never had a fair chance of acquiring in his youth more than a traveler's knowledge of his own language. His mind had a very small outlet through the ordinary channels of thought. The faculties of drawing and composition were so trained as to compensate for this. His mind had only one entrance, his eye, but one exit, his hand, but these were cultivated exceptionally.

Turneresque poetry is formed very much as Turneresque landscape, but the result is not so satisfactory. Poetry requires a totally different training from that which Turner possessed. He may have had a good ear for the music of tones, for he used to play the flute, but he had none for the music of words. Coleridge was an instance of how distinct these faculties are, since he, whose verse is replete

with beauty of sound, could not tell one note of music from another. Turner lived in a world of light and color and beautiful, changeful, indefinite forms, his thought had visions in place of words. His mind began with itself in sight and symbols, the procession of his ideas was a panorama. So where a poet would jot on his mental retina, *his* true poetry was drawn, not written—the poetry of instant act, not labored thought.

In art, Turner met friends and encouragers on all sides, from his father to his school-fellows. He was “found out” in his childhood. Encouraged by his father, his drawings finding ready sale, with employment in coloring prints and putting in backgrounds to drawings, with an architect offering to take him gratuitously as an apprentice, with Dr. Monro always willing to give him supper and half a crown for landscape sketches or copies of the best attainable water colors, his life was far more agreeable and far more tended to make him think well of the world and of the people in it than has been usually represented. He had good training for early proficiency in art. London was not a bad place then for a landscape artist. He was not entirely dependent upon his art and employers for enjoyment or for an opinion of the race. There were houses where he was warmly received. He was received as a member of the family by the artist Wells, whose daughter, familiar with Turner’s career for sixty years, has left the following tender yet discriminatingly just reminiscence:

“In early life my father’s house was his second home, a haven of rest from many domestic trials too sacred to touch upon. Turner loved my father with a son’s affection, and to me was as an older brother. Many times I have gone out sketching with him. I remember his scrambling up a tree to obtain a better view, and when he made a colored sketch I handed up his colors as he wanted them. At that time I was quite a young girl. He was a firm, affectionate friend to the end of his life. His feelings were seldom seen on the surface, but they were deep and enduring. No one would have imagined that under that cold exterior strong affections lay hidden. I have more than once seen him weep bitterly, particularly at the death of my own father, which took him by surprise, for he was blind to the coming event which he dreaded. He came immediately to my house in an agony of tears. Sobbing like a child, he said ‘O Clara, Clara, these are iron tears. I have lost the best friend I ever had in my life.’ Oh, what a different man Turner would have been if all the good and kindly feelings of his great mind had been called into action, which lay dormant and were known to

so very few! He was by nature suspicious, and no tender hand had wiped away early prejudices, the inevitable consequence of a defective education. Of all the light hearted, merry creatures I ever knew, Turner was the most so. The laughter and fun that abounded when he was an inmate of our cottage was inconceivable, particularly with the juvenile members of the family."

A man about whom so kind a heart could have thus written sixty years after could not have been driven to a life of morbid seclusion because the world had treated him badly in his youth. His home, destitute of a mother, was a cheerless one. His want of education increased the secretive suspicious disposition of his class. The only rebuff with which he met was from the perspective draughtsman who sent him back to his father, as it was impossible to teach him geometrical perspective. Scientific perspective, Morehouse remarks, is a pursuit which may attract a mathematician, but the stronger the artistic faculty the less likely an artist is to admire it. Turner felt this, and the feeling very much lessened the disappointment at being "sent back." As Morehouse remarks he did very well without it, so well that he was appointed Professor of Perspective at the Royal Academy and not unfrequently exhibited pictures on its walls which showed how very much without it he was.

Otherwise he met with no rebuffs in his art. He got plenty of employment. When pitied in later years for this supposed degradation and slavery, he replied, 'Well, and what could be better practice?' It was this and more. It not only taught him to work neatly, to lay flat washes smoothly and accurately, but to exercise ingenuity and artistic taste. He succeeded so well because of the opportunity of thus displaying artistic faculty. Every sketch he had thus to beautify was an artistic problem, how best to light and decorate the bare bones of artificial design. Thus to be the converter of topography into art gave him a sense of power and importance, and taught him the value of light, shade, and decorative capacities of trees and sky. His success gave him self reliance. A more doubtful advantage was that it taught him to consider drawing as skill in beautifying. He got the habit of treating buildings not as objects of art themselves but, as Ruskin shows, as agencies for the breaking of sunbeams and as straight lines to contrast with the endless curves of nature, and also the habit of using trees as he wanted them, of bending their boughs and moulding their contours in harmony with his imaginary poem pictures. To this early treatment of architectural drawings may be traced his power of composition and his mannerism.

He soon knew his power and had his secrets of manipulation—one reason for early secretiveness about art. There is little in his early works to prophesy future greatness, yet he as a youth was equal to the best coeval water-colorists.

He and Girtin soon surpassed all except Cozzens. Of equal talent, and more than two years Turner's senior, Girtin was "ahead" of Turner, who learned much from him. Turner's boyish delicacy of constitution, evident in the frequently needed country visits, prevented much social intercourse, especially as the art education was so pushed as to exclude all else. His mother's condition made him, as a boy, very reticent, suspicious, and self-conscious. Insanity in a family is a carking secret. The Turner skeleton was jealously hidden years after hospital treatment was needed. At eleven, Turner was a recognized member of an artist coterie—Wilson, Marlow, Cozzens, Hearne, Varley, Edridge, Saundby, Girtin, and Gainsborough—which met at Dr. Monro's house. Turner evidently neglected social advantages open to him, and intellectual intercourse with his artistic peers—everything, in fact, except the pursuit of art, wealth, and fame. This self-absorption, this concentration of all his time and power, was an expression of business tendencies. With every faculty for becoming a socially cultivated being, he took the solitary path which led to greatness, accompanied with mental isolation and ignorance of all but what he could gather from observation, unaided by a cultivated intellect. Turner learned reading from his father, writing and little else at schools, perspective (imperfectly) from T. Malton, architecture (imperfectly, and classical only) from Mr. Hardwick, water-color drawing from Dr. Monro, and painting in oils from Sir Joshua Reynolds.

Such an education must develop onesidedness. Since *onesidedness* was on the *art side*, the average thinker is blind to the fact that Turner's art was simply his "business." Turner was saved from complete absorption in money-getting, resultant on his "business" education in art and on his father's precepts, by the kindness shown him by artists and friends. The effect of this is singularly well illustrated in the manifestations of Turner's kindness, which are rather evidences of a proud, reserved nature than of a degenerate or a "business" man who sees his competitors as rivals to be crushed. Turner showed his best disposition in his kindness to children, animals, and his fellow artists. Of the last he always spoke kindly, and to the young or old was ever just and kind and patient. Poor Hayden said that he did him justice. He

assisted many a young man with a useful hint. He once took down his painting at the Academy to find a place for one of an unknown artist. He exhibited chivalric, unselfish generosity. One of his pictures was called "Cologne—The Arrival of a Packet boat—Evening." There was such unity and serenity, such a glow of light and color that the work seemed like a harmony of things more perfect than they have ever been. The picture was hung between two of Sir Thomas Lawrence's portraits. Turner covered its glowing glory with a wash of lampblack so as not to spoil the effect of Sir Thomas's pictures. The many stories of apparently contrary action on Turner's part—namely, of heightening the color of his pictures to "kill" those of his neighbors at the Academy—do not spoil this act. During those merry varnishing days which Turner enjoyed so much attempts to outcolor one another were ordinary give and take sallies of skill, made in good humor. No one entered into such contests with more zest than Turner, and he was not always the victor. This act proves that when Turner saw that one was really hurt, his kindness was greater than his spirit of emulation and jest.

There is no story of Turner which shows malice in his nature. To his brother artists he was always friendly and just never spoke in their disparagement, and often helped young artists with kind words or a practical suggestion. Even Constable between whom and Turner not much love was lost he helped on one occasion by striking in a ripple in the background of his picture, the something just wanted to make the composition satisfactory. Turner took great interest in the founding of the Artists' Benevolent Fund, and meant his accumulated wealth to be spent in a home for decayed artists.

His greatest triumph of self sacrifice was when he was waited upon by a committee to buy his pictures for the nation. He refused to sell them, because he had willed them to the nation. He might have had money and wish both, but refused.

Turner's art peculiarities have been charged to both mental and optical defects. He, however, succeeded well without geometrical perspective, and thus naturally engendered mannerism, for which no visual defect is needed to account.

Granting the most enormous influence possible to Turner's neuropathy, under his education his career would have been inevitably the same without it. Psychiatry measures men not by an ideal, but by a composite photograph of the class to which they belong. Turner's parsimony, secretiveness and other vices are those

of the shop-keeper class His incoherence is not rare in men of like imperfect education The Turner literary relics, moreover, were badly and carelessly edited by Thornbury, to whom they were committed Had Turner not been a success at the outset, he would have been forced to acquire a better general education As it was, old man Turner spurred the mental bent of his boy into the best pot-boiling direction Had old Turner not been accustomed to artists, he would have crushed his son's art instincts in the way pointed out by Ruskin

Turner's biographers insist on measuring the Anglo-Saxon "*business*" man by the standard of the *cultured* Turner's life, with a few exceptions, is essentially that of an artist who had imbibed to the full the commercial tricks of Bunyan's "Mr Bad-man" and Defoe's "Complete British Tradesman" The father saw the money value of his son's art Guided by the business principle so much boasted to-day, he cultivated that side to the neglect of all else Turner's financial success stamped on his mind the value of his father's commercial axioms Trades in England had in the eighteenth century not evolved from the mystery stage, still enunciated legally in indentures To keep his procedures a secret from his customers and the trade, was the first duty of a tradesman However loyal to art on the art side, Turner elsewhere acted in the spirit of the British huckster who piques curiosity and creates talk by the mystery with which he guards trade secrets Art to the elder Turner was a trade—to learn which, all else must be neglected The very spirit with which the father entered into art enabled him to exercise a banal influence over his son's culture elsewhere The gleams of light which penetrate the murk of his repellent character show the potentialities of training for good Turner's life and character and art, seemingly complex in their manifestations, were simple in motive He could paint

"The light that never was on sea or land,
The consecration and the poet's dream"

His poetic tendencies, the chivalric kindness shown to fellow artists, the innate tender nature which the quoted reminiscence reveals, demonstrate that had he been subjected as thoroughly to training in general culture as he was to training in art, Art's pantheon would have been enriched by a noble figure in place of a deformed statue The striking contrast with Goldsmith, Keats, and Shelley, becomes on analysis as striking a resemblance Goldsmith,

"Who wrote like an angel,
And talked like poor Poll,"

despite his wider culture, is a replica of Turner in his famous carousals. The poet Keats, dying from the review of "Endymion," is pathos. The apothecary Keats, leading a coarse student life and infected with tuberculosis, dying because of inherited delicacy of constitution and acquired parasymphilia, is pre-eminently bathos. Shelley's revolted soul in "Queen Mab" and "Prometheus Unbound" is a sublime spectacle. Shelley whining over the laudanum bottle and hypochondriacally bewailing imaginary elephantiasis is a common morbidity. Such contrasts are expressions of physiological law—that a nerve too frequently irritated by one stimulus often requires a new one to rouse it. The coarse pleasures of Keats, Goldsmith, and Turner, those of the class to which they belonged, were not out of accord with their environment.

In the childhood of Turner are hints pointing to neuropathy. The degenerate tendency reveals itself in the child not only by physical stigmata, but by spinal and cerebral disorders (night terrors, somnambulism, perverse instincts, etc.). The last appears in the following history furnished partly by the subject herself. The subject's grandfather was a clergyman ambitious of training his sons to obtain a collegiate education. The father, a lawyer, had been more than half Jacobin at the time the French revolution cast its glamor of promise over the world. He was a cultured man well read in ancient and modern classics. The mother, of a sunny and joyous disposition, had delicate health. The father trained the daughter himself. As training occurred coincidentally in Latin and English, and as she learned Latin at six, the strain was very severe, since outdoor exercise and other proper physical care (somewhat evident in the case of Turner) were neglected. She draws the following picture of her state:

"I was usually sent to bed several hours too late with nerves unnaturally stimulated. The consequence was a premature development of the brain that made me an infant prodigy by day, and by night a victim of spectral illusions, nightmare and somnambulism which at the time prevented the harmonious development of my bodily powers and checked my growth, and which later induced continual headaches, weakness, and nervous affections of all kinds. As these again reacted on the brain, giving undue force to every thought and every feeling, there was finally produced a state of being both too active and too intense, which wasted my constitution and will bring me, even although I have learned to understand and regulate my now morbid temperament, to a premature grave. No

one knew why this child, already kept up so late, was still unwilling to retire. My aunt cried, 'Out upon the spoiled child, the most unreasonable child that ever was—if brother could but open his eyes to see it—who is never willing to go to bed.' They did not know that when at last she went to sleep it was to dream of horses tramping over her, and to wake once more in fright, or (as she had just read in her Virgil) of being among trees dripping with blood while she walked and walked and could not get out, while the blood became a pool and splashed over her feet and rose higher and higher till soon she dreamed it would reach her lips. No wonder the child rose, walked in her sleep, moaning all over the house, till once when they heard her they came and waked her and she told what she had dreamed. Her father sharply bid her leave off thinking of such nonsense, or she would be crazy, never knowing he was himself the cause of all these horrors of the night."

Her childhood was full of presentiments. She was then a somnambulist. She was subject to attacks of delirium, and later perceived she had spectral illusions. At the age of twelve she had determination of blood to the head. Her parents were much mortified to see the fineness of her complexion destroyed. Her own vanity was severely wounded, but she recovered and made up her mind to be a fright and ugly. She was all her lifetime the victim of disease and pain. She read and wrote in bed, and believed she could understand anything better when she was ill. Pain acted like a girdle to give tension to her feelings. A lady who was with her during an attack of nervous headache, which made her totally helpless, found that she was in the finest vein of humor and kept those who were assisting her in a strange painful excitement. Beside peculiarities of habit and power when ill, she said she had second sight like St. Francis. These traits and predisposition made her a willing listener to all the uncertain science of mesmerism and its goblin brood, as rife then as now. She had a feeling that she ought to have been a man, and said to herself, "A man's ambition with a woman's heart is an evil lot." In some verses which she wrote "To the Moon" occur these lines

"But if I steadfast gaze upon thy face,
A human secret like my own I trace,
For through the woman's smile looks the male eye"

And she found something of true portraiture in a disagreeable novel of Balzac—"Le Livre Mystique"—in which an equivocal figure exerts alternately a masculine and feminine influence on the characters of the plot.

At thirteen she had such mental and physical precocity as to pass for twenty and have her place in society as a lady full grown. She was a myopic girl, of florid complexion, in vigorous health, but with a tendency to obesity, of which she was painfully conscious and which with little regard to hygienic principles she endeavored to suppress or conceal, thereby preparing for herself much future physical suffering. This precocity and this lipomatosis were physical stigmata of degeneracy. Lipomatosis is a recognized expression of the same hereditary defect as gout.

Her face attracted and fascinated without satisfying. Never seen in repose, never allowing a steady play of features, it baffled analysis. She had blond hair in abundance, excellent teeth, sparkling, dancing, busy, yet myopic eyes. At thirteen she was a finished conversationalist. She met the giggles of frivolous girls at her country dress with quizzical satiric remarks that bit like an adder. At the critical period of adolescence she passed into a depressed emotional state nearly resembling melancholia. There was present the usual introspective tendency of adolescence, which laid stress on disease and referred this to overstrain rather than congenital neuropathy. From these states she passed into apparent health.

Surely, would an alienist of the Lombroso school remark, must this girl develop into a newspaper "new woman," scouting at domestic ties, fighting modern civilization, full of impracticable projects, one of Carlyle's shrieking sisterhood, or into that family vampire the neuropathic hysteric or her sister the criminal taking the line of least resistance—the adventuress—or into an hysterical lunatic or perchance into a noble woman maimed by neuropathic defect like Hawthorne's "Zenobia." Such a prognosis would be most natural from the clinical history, which is that of Margaret Fuller, whose fate even on the contrasted judgment of her contemporaries, was none of these.

Moncure D. Conway found her cold, didactically intellectual, and homely. The equally cynical diplomat, Lord Beaconsfield found her so charming, so intellectual, yet so womanly, that he left that exquisite portrait of her, "Theodora," the idol of artists, grim Scotch Calvinists, blasé aristocrats, rigid British matrons, satirical diplomats, red republicans and shrewd business men. The cynic Carlyle finds her book "is greatly superior to all I knew before, in fact the undeniable utterance (now first undeniable to me) of a heroic mind altogether unique so far as I know among the writing women—rare enough, too, among men. Such an absolute predestination to eat this big Universe as her oyster or her egg and to

be absolute empress of all the height and glory her heart could conceive, I have not before seen in any human soul " Emerson thought her full of nobleness and with a generosity native to her mind and character that appeared an exotic in New England, a foreigner from some more sultry and expansive clime

The Zenobia of the Blithedale Romance was her portrait, yet its prophecy, justifiable by her clinical history, remained unfulfilled Margaret Fuller married a cultured Italian (Disraeli reverses the nationalities in "Lothair") and was a devoted wife and tender mother That mind whose gigantic ambitions so impressed Carlyle could so contract itself to domestic economy as to be an excellent housekeeper and even solve that enigma of the sphinx, the servant-girl problem

What changed this seemingly foredoomed neurotic from the hysteric possibilities truthfully pictured in the partly imaginary Zenobia? The father's and mother's training, marred as they were by overstrain, tended to balance a nature which evidently from the mother inherited a neurotic tendency, with, however, a good mental background This training, with all its defects, was not the limited one which deprives so many hysterics of their feeble intellectual balance-wheel The woman who had been taught to appreciate Horace, that antidote to excessive emotionalism, was not likely to attempt to upset the world on a small salary

The time of her appearance in New England was peculiarly fortunate Coexistent with an intense idolatry of the golden calf was an opposing spirit expressed in Transcendentalism and the Brook Farm Socialistic as this last experiment was, the Brook Farm experimenters learned the value of the individual Hawthorne learned the lesson taught in the Blithedale Romance, that labor without individual aspiration degrades man to a cloddish machine, Charles A. Dana, from an esthetically philanthropic potential Robespierre, became the genial practical satirist of the New York *Sun*, Emerson, from a potential puritan inquisitor forcing men to be good by law, became a Jeffersonian anarchist who preferred to see men free rather than strongly governed The Brook Farmers, aside from the vegetarian Bronson Alcott, the "potato gospeller" of Carlyle, became nobly self-reliant, seeing

" How small of all that human hearts endure,
That part which laws can cause or cure "

To Margaret Fuller such an individual training was peculiarly beneficial The play of contrasted intellects downed that primary egotism, the curse of the literary man, so conspicuous in Carlyle and

so peculiarly poisonous to a potential hysteric. At its most socialistic phase Brook Farm aimed at the spread of socialism by example rather than force or legislation. The egotism of that most noxious parasite, the professional reformer, was kept completely in the background. Margaret Fuller's training as a boy, as injudicious friends entitled it, made her pedantic, perchance, but certainly self-reliant. Even her father's prohibition of perusal of novels and plays at the age of eight undoubtedly kept the emotional in the background, accompanied as it was by no directions what to read. This freedom in literature made her a brilliant conversationalist, interesting to grave men at the age of thirteen. Even then the training had done its excellent work. She had an infinite curiosity to know individuals—not the vulgar curiosity which seeks to find out the circumstances of their outward lives, but that which longs to understand the inward springs of thought and action. To her a human being was not the result of the presence and stamp of outward circumstances, but an original monad capable of certain fixed development and having profound personal unity. Despite this early depth of thought, her intercourse with girls of her own age and standing was frank and fascinating. Personal attractions and the homage they received awakened in her no jealousy. She envied not their success, though vividly aware of the worth of beauty. She loved to draw these fair girls to herself, and was never so happy as when surrounded by such a bevy. Without flattery or art, by the truth and nobleness of her nature she won the confidence and made herself the intimate friend of a large number of the belles of her day. With most of these she remained in correspondence during the greater part of her life. Her speech, though finished and true as the most deliberate rhetoric of the pen, had always an air of spontaneity which made it seem the grace of the moment. Though remarkably fluent and select, it was neither fluency nor choice diction nor wit nor sentiment that gave it peculiar power, but clear statement, keen discrimination, and certain weight of judgment, which contrasted charmingly with the youth and sex of the speaker. Her mind was of what is called the masculine type more determined by ideas than sentiment, yet with this was combined a woman's passionate love for the beautiful which comprehended all nature and art. She derived an intense satisfaction from the contemplation of all beauty. She thought Tagliani's dancing a most beautiful expression of the poetry of motion. Her mind realized Tennyson's dream of that ideal time of 'The Princess' when in the long years liker must the sexes grow—

"The man be more of woman, she of man,
 He gain in reverence and in moral height
 Nor lose the wrestling thews that throw the world,
 She mental breadth, nor fail in childward care "

The training in economy, forced by her father's death intestate, involved by real-estate speculation, was beneficial. She was obliged to turn from German philosophy, then entered on, to a ways-and-means committee. She taught the younger children, and refused to take funds set apart by her father for a European tour. This at the critical period ere the close of adolescence developed strongly the secondary ego, then rather unstable. At this time made to think first of her family, hysteric egotism was dominated by the healthy mental background, nor was the influence of this diminished by her literary training. The eighteenth-century English novelists among her father's classics she finds too coarsely natural. At thirteen, Fielding's 'Amelia' is to her an idyll of domesticity. In a bookish neuropathic girl this was a healthy symptom. The mother, housewifely in tastes, had an intense appreciation of beauty.

Healthy atavism produced in Margaret that genuine culture which picked out the best from the best literature. This healthy atavism was stimulated by her father pushing emotional literature aside until the mind of the reader was mature enough to dip deep into the Pierian spring. Under narrow money-worshippers the cant of sentiment would have been stimulated, the taste for culture would have been dwarfed, the hysterical tendency evident in the fanciful notions aient illness would have burgeoned into full luxuriance. In place of a Margaret Fuller, America would have had a Marie Baskirtsheff.

The neglect of the physical side of training which would certainly be given an American girl of her station to-day, underlay the development of the neurotic defects observable in her. Had the gospel of physical health been preached in Margaret Fuller's day, the narrowness not removed by the mental training would have been corrected by supplementary physical training. In the physical direction Margaret Fuller was deliberately ill-trained. The mental training, while not able to destroy the evil effects of this, was sufficiently beneficial to keep them in the background.

Although degenerate parents be convinced of the necessity for caution in rearing children, their inhibitions are too weak to carry out, systematically, training decided upon. Complete separation¹ affords the chief hope of training the weak inhibitions of the degen-

¹ *Alienist and Neurologist* 1895-7.

erate In Turner's case the insanity of his mother came here into beneficent play This separation, however, is often impossible since degenerate mothers are excessively fond of their children in a maudlin fashion, and their egotism causes them to believe themselves model mothers I have had such a mother consent to turn over the entire training of her child to a person recommended by me, yet at the first attempt of the companion to exercise authority the mother told the child to do as it pleased These children need regular nourishing diet, outdoor exercise regular hours, and regular employment The sense organs and their cerebral centres in degenerate children have often but the slightest education Seguin has shown, in his depiction of the results of training an idiot eye, how important this is The educator must, therefore, study these senses and their functional power systematically His interference should be slow and prudent The natural disposition and powers should be carefully analyzed Morel Koch and Kerlin have urged the necessity of special schools for these classes

Lombroso, in a lecture before the teachers of Turin, expressed his conviction that the systematic study of the characteristics of school children, physical and mental, would bring about a genuine revolution in the prophylaxis of crime He pointed out that the inclinations of the child are almost the same as of the adult rascal, but usually disappear as age advances In some instances, however, these characteristics are conspicuous and continue to be more prominent, in which case there are associated physical peculiarities, and it is in the detection and pointing out of these possible criminals of the future that Lombroso thinks the teacher can do so much truly useful work

The piteous picture of the sufferings of Maria Bronte (Miss Burns) in the school of 'Jane Eyre' might well cause the indignant joy of Charlotte Bronte's biographer that the savage rites of the school room which so moved the indignation of Montaigne have just ceased to disgrace England Maria's mind and physique perished under school overstrain Charlotte Bronte's seeming mental limitations saved her from the fate of her sister These two diverse careers tell the same story as to the value and ill-effects of training Margaret Fuller charges her night terrors at the age of six to over training, yet at four her imaginative faculty was spontaneously directed not to the childish fetishism of toys, but to the sombre aspects of death This precocity would alone denote congenital neuropathy, since, as Sully forcibly remarks,¹ nothing is more

¹ Sully Psychology of Childhood

shocking to the adult observer of children than their coldness and stolidity in presence of death. In a child such persistent dread of death is a morbid mental stigma very significant ere developed jaw and face stigmata appear. Such a child needs different training from those healthy youngsters, "Helen's Babies," with their quaint view of death.

Margaret Fuller contrasts markedly with Mrs. Burnett, who when a sensitive, refined child was first brought face to face with death. In one case she was taken with fearsome longing to touch the dead body so as to know what "as cold as death" meant, in another, that of a pretty girl of three, with golden-brown eyes and neat small brown curls, she was impressed by the loveliness of the whole scene, the nursery bed-room being hung with white and adorned with white flowers, in neither case was she sorry, nor could she cry, though she had imagined beforehand that she would. Even in this case, then, where so much feeling was called forth, commiseration for the dead companion seems to have been almost wholly wanting.

More than one thinker, as much a book-lover as Macaulay, will agree with him that mere book learning does not constitute complete education. Johnson said that the boasted Athenians were barbarians: the mass of every people must be barbarous where there is no printing. The fact was, as Macaulay states, that Johnson saw that a Londoner who could not read was very stupid and brutal. He saw that great refinement of taste and activity of intellect were rarely found in a Londoner who had not read much. Because it was by means of books that people acquired almost all their knowledge in the society with which he was acquainted, Johnson concluded, in defiance of the strongest and clearest evidence, that the human mind can be cultivated by means of books alone. An Athenian, as Macaulay points out, might possess very few volumes, and the largest library to which he had access might be much less valuable than Johnson's book-case in Bolt Court, but the Athenian might pass every morning in conversation with Socrates, and might hear Pericles speak four or five times every month, he saw the plays of Sophocles and Aristophanes, he walked amidst the friezes of Phidias and the painting of Zeuxis, he knew by heart the choruses of Æschylus, he heard the rhapsodist at the corner of the street reciting "The Shield of Achilles" or "The Death of Argus," he was a legislator conversant with high questions of alliance, revenue, and war, he was a soldier trained under a liberal and generous discipline, he was a judge compelled every day

to weigh the effect of opposite argument. These things were in themselves an education eminently fitted, not indeed to form exact or profound thinkers, but to give quickness to the perceptions, delicacy to the taste, fluency to the expression, and politeness to the manners. Johnson's view is that of most modern educators. Into it even the school of Froebel has degenerated.

The child is not regarded as a being to be trained to an environment, but as a receptacle for facts irrespective of temperament, race, bodily or mental state. Mothers gird their children in the mental strait jackets provided by professional lecturers, blatantly ignorant of the physiological or psychological aspects of childhood. To girls such mental strait-jackets are peculiarly destructive. Neither of the typical products of this system is eminently valuable. The unimaginative child becomes the "Prunes and Prism" female with her conventional platitudes, an egotistic morbidity equal with the newspaper *New Woman* whose mental characteristics, as outlined by her latest eulogist, are those of immature, uncompleted puberty. Even in their childhood Laura M. Hanson¹ remarks, these women have a strong though indistinct consciousness of their own worth as compared to ordinary women. They are always on the watch, and have a good memory. Unlike ordinary young girls, they do not fall in love with mere outward qualities nor with the first man who happens to cross their path. They wish to marry some one superior to themselves, and they do not mistake a passing passion for love. Then, when the years of adolescence with their hot impulses are past, and temporary calm sets in, they experience a new desire, which is that they may enter into the full possession of their own being before beginning to raise a new generation. They want to be grown up in mind and soul before entering on life: they do not wish to remain children always, they want to develop all their capabilities, and this longing for individuality nearly always leads them astray in the wilderness of study.

Popular recognition of such evidence of adolescence in both sexes has found significant expression in the term 'sophomoric.' In no small degree did Margaret Fuller's training correct such tendencies.

Her neurotic defects demonstrate the need of care during the periods of child stress. The new born infant passes during the first six months through what has been termed the 'first epoch of transition.' Then occurs the first dentition, lasting through the second year. After which comes the 'second epoch of transition.'

¹ *Six Modern Women*

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in duration about five years. The second dentition then occurs, and may endure even until the fifteenth year. The period of puberty then develops, not completed until the twenty-fifth year, when the eruption of the wisdom teeth occurs if at all. At these periods occur nutritional, neurotic, psychic and ethnic stress, indicating defects correctable by hygienic and psychic training ere temporary reaction has passed into habit, that great danger from the periodicity of the nervous system.

The deficiencies and the value of Margaret Fuller's training afford indications for the education of girls, to meet which no nobler scheme could be devised than that of Ruskin, who remarks that you have first to mould her physical frame, and then, as the strength she gains will permit you, to fill and temper her mind with all knowledge and thoughts which tend to confirm its natural instincts of justice and refine its natural acts of love. From his system Ruskin¹ excluded the factor most injurious to Margaret Fuller—theology. "With this exception," he remarks, "a girl's education should be nearly in its source and material of study the same as a boy's, but quite differently directed. A woman in any rank of life ought to know whatever her husband is likely to know, but to know it in a different way. His command of it should be foundational and progressive, hers general and accomplished for daily and helpful use. Not but that it would often be wiser in men to learn things in a womanly sort of a way for present use and to seek for the discipline and training of their mental powers in such branches of study as will be afterwards fitted for social service. But speaking broadly, a man ought to know any language or science he learns thoroughly, while a woman ought to know the same language or science only as far as may enable her to sympathize in her husband's pleasures and in those of his best friends.

"Yet *observe* with exquisite accuracy as far as she reaches. There is a wide difference between elementary knowledge and superficial knowledge, between a firm beginning and an infirm attempt at compassing. A woman may always help her husband by what she knows, however little, by what she half-knows or mis-knows she will only tease him. And indeed, if there were to be any differences between a girl's education and a boy's, I should say that of the two the girl should be earlier led, as her intellect ripens faster, into deep and serious subjects, and that her range of literature should be not more but less frivolous, calculated to add the qualities of patience and seriousness to her natural poignancy of

¹ *Sesame and Lilies*

thought and quickness of wit, and also to keep her in a lofty and pure element of thought. With regard to the sore temptation of novel reading, it is not the badness of a novel that we should dread so much as its overwrought interest. The weakest romance is not so stupefying as the lower forms of religious exciting literature and the worst romance is not so corrupting as false history, false philosophy, or false political essays. But the best romance becomes dangerous if by its excitement it renders the ordinary course of life uninteresting and causes the morbid thirst for useless acquaintance with scenes in which we shall not be called upon to act.

"I speak, therefore, of good novels only, our modern literature is particularly rich in types of such. Well read, indeed, these books have serious use, being nothing less than treatises on moral anatomy and chemistry, studies of human nature in the elements of it. But I attach little weight to this function, they are hardly ever read with earnestness enough to permit them to fulfill it. The utmost they usually do is to enlarge somewhat the charity of a kind reader or the bitterness of a malicious one: for each will gather from the novel food for her own disposition. Those who are naturally proud and envious will learn from Thackeray to despise humanity, those who are naturally gentle, to pity it. There might be a serviceable power in novels to bring before us in vividness a human truth which we had before dimly conceived: but the temptation to picturesque-ness of statement is so great that often the best writers of fiction cannot resist it, and our views are rendered so violent and one-sided that their vitality is rather a harm than a good.

"Without, however, venturing here on any attempt at deciding how much novel reading should be allowed, let me at least clearly assert this—that whether novels or poetry or history be read, they should be chosen not for their freedom from evil, but for their possession of good. The chance that scattered evil may here and there haunt or hide itself in a powerful book never does any harm to a noble girl, but the emptiness of an author oppresses her, and his amiable folly degrades her. And if she can have access to a good library of old and classical books there need be no choosing at all. Keep the modern magazine and novel out of your girl's way, turn her loose into the old library every day and let her alone. She will find what is good for her, you cannot: for there is just this difference between the making of a girl's character and a boy's—you may chisel a boy into shape as you would a rock or hammer him into it if he be of a better kind, as you would a piece of bronze, but you cannot hammer a girl into anything. She grows as a flower

does, she will wither without sun, she will decay in her sheath as a narcissus will, if you do not give her air enough, she may fall and defile her head in dust if you leave her without help at some moments of her life, but you cannot fetter her, she must take her own fair form and way if she take any, and in mind as in body must have always

‘ Her household motions light and free,
And steps of virgin liberty ’

Let her loose in the library as you do a fawn in the field It knows the bad weed twenty times better than you, and the good ones too, and will eat some bitter and prickly ones good for it which you had not the slightest thought would have been so

“ Then in art keep the finest models before her, and let her practice in all accomplishments be *accurate* and *thorough* I say the finest models—that is to say, the truest, simplest, usefulest Note these epithets, they will range through all the arts Try them in music, where you might think them the least applicable I say the truest, that in which the notes most closely and faithfully express the meaning of the words or the character of intended emotion

“ And not only in the material and in the course, but yet more earnestly in the spirit of it, let the girl’s education be as serious as a boy’s You bring up girls as if they were meant for sideboard ornaments, and then complain of their frivolity Give them the same advantages that you give their brothers, appeal to the same grand instinct of virtue in them, teach them also that courage and truth are the pillars of their being Do you think that they would not answer that appeal, brave and true as they are even now, when you know that there is hardly a girl’s school in this Christian kingdom where the childrens’ courage of sincerity would be thought of half so much importance as their way of coming in at a door, and when the whole system of society, as respects the mode of establishing them in life, is one rotten plague of cowardice and imposture—cowardice in not daring to let them live or love except as their neighbors choose, and imposture in bringing for the purpose of our own pride the full glow of the world’s worst vanity upon a girl’s eye at the very period when the whole happiness of her future depends upon her remaining undazzled

“ There is one more help which she cannot do without, one which alone has sometimes done more than all other influences besides—the help of wild and fair Nature ”

With three important exceptions Ruskin’s scheme was followed

in the case of Margaret Fuller. The physical training and the study of nature were ignored; the theology unfortunately was not. In Turner the value of physical training is evident; his frequent country visits gave that strength to a defective system which was evident in his relatively long life. Such a long life could never have resulted in a neuropath under the storm and stress of modern athletics.

The cant of ignoring the body for the benefit of the mind has had its day. That of undue value of the body has supplanted it. *Mens sana in corpore sano* implies equal training of both. Emulation for the prizes of intellect is as destructive to mind and body as emulation for the prizes of athletics. In no small degree has the race survived numerous factors of degeneracy through the influence of environment unconsciously directed to the best purpose.

The future will recognize in the physician the educator. To the savants who, forcing degeneracy to the front as a study, demolished the cant of human perfection, the race owes the same infinite debt of gratitude it does to the men who destroyed the earth as a universe centre and man as its centre. Itard, Kerlin, Seguin, Koch and Morel have shown the correction of grave degeneracy by proper training. The present analysis demonstrates the value of even fortuitous training in the potential cases.

BOOK REVIEWS.

DON'TS FOR CONSUMPTIVES By Charles Wilson Ingraham, M D , Binghamton, N Y 1896

In addition to the foregoing brief and somewhat ambiguous title, the author informs us that the work is devoted to the scientific management of pulmonary tuberculosis. It is also intended as a guide for the pulmonary invalid in making and maintaining a modern sanatorium in his own home, with a description of how every consumptive person may apply the forces of nature to assist and hasten recovery, and also how the defects of heredity may be best overcome.

The work is dedicated to the advancement of self-study among pulmonary invalids, and the promotion of public information upon the subject of tuberculosis. It is divided into thirty-eight chapters, the first ten of which deal more especially with the duty of consumptives relative to infecting other persons. The chapter headings in this section will give an idea of the scope of this portion of the work. They are Sanitary Care of Tubercular Expectoration, Handkerchiefs and Tubercular Contagion, Special Precaution against Room-infection, Sanitary Cuspidors, their Construction, Care, and Disposal, Tuberculosis from Infected Houses and Apartments, Dangers from Double Occupancy of Sleeping-rooms, Precautions as regards the Common Use of Towels, Napkins, and Table-ware, Communication of Tuberculosis by Kissing, Tubercular Contagion in Milk and Meats, The Consumptive's Duty from a Moral and Legal Standpoint.

The care and treatment of the consumptive furnishes, naturally, the major portion of the work. Especial stress is laid upon hygiene and the importance of ventilation of the sleeping- or living-rooms both by day and by night. A southeastern exposure of the sleeping-room is especially recommended, and the morning sun is said to have a very beneficial effect upon the pulmonary invalid. Chest exercises are enjoined, but caution and discrimination are inculcated in their use. Development of the chest is one of the most important means of permanently combating the results of pulmonary consumption. General physical exercise is recommended, as the author recognizes that pulmonary tuberculosis represents a diminution of general physical energy. The effect of sudden and deep inhalations of cold or damp air he regards as especially injurious, also mouth-breathing. Regarding clothing, he says "Do not adopt any clothing which does not insure as nearly as possible a uniformity of warmth." The subject of clothing is an important one, individuality is, however, so pronounced that it is impracticable to frame any except very general rules as to the clothing of pulmonary invalids. Regularity in taking food is insisted upon, and we have an excellent chapter on the relations of food-taking, clinical exercise, and body temperature. As a simple means of preventing chills and coughing, a daily glass of hot milk fifteen or twenty minutes before rising is enjoined. This, it is claimed, not only facilitates expectoration, improves digestion and appetite, but acts as a nutritious stimulant and does much to prevent morning chills. Ice-water and ice-cold drinks are never to be

taken, and alcoholics as a rule are to be avoided except during or very soon after meals, and then only a moderate quantity is allowable.

Especial emphasis is laid upon the proper care of children who have inherited a predisposition to tuberculosis, and general rules are given for the protection of children from tubercular infection. The importance of microscopical examination of expectorated material is emphasized, and we have chapters upon occupations for pulmonary invalids and society life. Stress is laid upon the importance of keeping a correct and systematic record of the body weight, temperature, and pulse for this purpose the writer appends a chart in which the pulse and temperature are to be recorded each two hours during the course of the day to be averaged at the end of the week. A record of the body weight is also to be kept and in addition there is a space for noting the chest-expansion and capacity, night sweats, and chills.

The whole purpose of the book is to secure greater uniformity and exactness in the management of pulmonary tuberculosis. This has been too much neglected in the past, physicians scarcely realizing owing to the chronic nature of the trouble, that it was an infectious process deserving of the same care and exactness in its management that is accorded the ordinary infectious diseases. In too many instances, after the diagnosis is made the pulmonary invalid is dismissed with only the most general directions and with one of the ordinary prescriptions the progress of the malady is not carefully noted, and the patient is not put in the best possible position for recovery or combating the progress of the disease.

This little work has evidently been written especially for the instruction of the pulmonary invalid, but we think it will find its greatest usefulness in the hands of the physician in stimulating him to greater care and accuracy in the observation of these cases. We have always been doubtful of the advisability of placing in the hands of invalids books treating of their diseases, and while there may now and then be an intelligent patient who will be greatly benefited by a work like this the majority would we feel, be rather harmed than other wise.

It is evidently not the intention of the author that his work shall be used in lieu of personal medical advice but to supplement and aid the work of the physician. In this respect the work is admirable. It shows careful compilation and a wide practical experience on the part of the author in the management of these maladies.

We cannot close the review of this work any better than by quoting the writer's opinions of the patent cough-syrup and we only wish that a copy of this chapter might be placed in the hands of every consumptive in the land.

As a rule these preparations contain an excessive amount of opium or some of the derivatives of opium and from the decidedly sedative effects of such drugs a temporary cessation of distressing pulmonary symptoms may be experienced following their use. The usual outcome however of such indulgence (or dissipation) is a deranged stomach, loss of appetite and an immediate return of the symptoms (which the remedy may have temporarily suppressed not relieved) as soon as the use of the preparation is discontinued. Instead of favoring recovery in the slightest respect these syrups will seriously diminish the consumptive's chances of restoration to health. In more than one respect 'patent cough mixtures' are the scourge of consumptive patients, if such a term is admissible. Then again many who consult a physician at first and

fail to obtain immediate relief, become discouraged, or, for reasons of expense, resort to the 'Cough Market,' where they obtain relief, for the time being at least. The tempting wrappers on the bottles proclaim for the respective cough-mixtures innumerable and incredible virtues. An attempt is usually made to impress the victim that a few bottles of the remedy will be sufficient to cure the worst form of cough. It does give *relief*, marked and immediate relief, and this fact increases the faith of the invalid and induces him to invest further in the remedy. But while the cough is being suppressed, the tubercular processes are steadily spreading, and invading more and more lung tissue which, by a proper course, might have been saved. The general vitality becomes less and less, until, at last, when the blanket of deception is removed, the victim appreciates his actual condition with all the pangs of hopelessness."

ELECTRICITY IN ELECTRO-THERAPEUTICS By Edwin J. Houston, Ph D., and A. E. Kennelly, Sc D. New York. The W. J. Johnston Co. 1896.

This work of 402 pages is intended to meet a growing demand which exists not only on the part of general medical practitioners, but also on that of the general public, for reliable information respecting the physics of electricity as applied to electro-therapeutics. In the main the authors have achieved success in their efforts to present the more necessary physics of electricity for the practitioner, but in many respects they have overdone the matter. We doubt if many practitioners will have the patience to master even the elements of the subject as presented in this work. It is true that before the administration of electricity as a remedy for disease can pass beyond the most empirical basis there must be some such entrance into the subject as is contained in this book, but we fear that it will only be made by those who are pursuing electro-therapeutics as a specialty. The needs of the general practitioner are, for the most part, fully met by the average work on electro-therapeutics.

THE AMERICAN YEAR BOOK
Digest of Scientific Facts
Medicine and Surgery,
of the leading American
editorial charge of George
1896

CLINICAL AND SURGICAL Being a Yearly
authoritative Opinion in All Branches of
Medicine, Surgery, and the Allied
Sciences, with Original Articles, Monographs and Text-books
by the leading American authors and investigators. Under
the editorial charge of George F. Johnson, M.D.
Philadelphia 1896

The author tells us in his
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As the above is something of a departure in medical book making we have examined this volume with great care, and we unhesitatingly say that we regard it as the most valuable single contribution to medical science which has appeared in the English language within the current year. The different departments are in charge of experts in their particular line and it is apparent that they have brought their best skill and an amazing amount of industry to the accomplishment of their tasks. It is, of course impossible in the space at our disposal to review these different chapters. We can only say that they are uniformly excellent, which cannot be said of many works produced in this way.

The several departments are contributed by the following gentlemen: General Medicine Wm Pepper and Alfred Stengel; Surgery W W Keen and John C. Da Costa; Obstetrics, Barton Cooke Hirst and W A N Dorland; Gynecology, J M Baldy and W A N Dorland; Pediatrics Louis Starr and Thompson S Wescott; Nervous and Mental Diseases, Archibald Church and Hugh T Patrick; Dermatology and Syphilis Wm A Hardaway and C Finley Hersman; Orthopedic Surgery, Virgil P Gibney and Homer W Gibney; Ophthalmology Howard F Hansell and Chas F Clark; Otology Chas H Burnett; Diseases of the Nose and Larynx E Fletcher Ingals and T Melville Hardie; Pathology and Bacteriology John Guit  ras and David Riesman; Materia Medica Experimental Therapeutics and Pharmacology Henry A Griffin and Van Horne Norrie; Anatomy, C A Hamann; Physiology G N Stewart; Hygiene, Medical Jurisprudence and Chemistry Henry Lefmann.

The above names are a sufficient guarantee of the excellence of the work and where all is uniformly excellent it would be perhaps invidious to single out portions for special commendation but we cannot let the occasion pass without referring to the chapter on General Medicine under the charge of Drs Pepper and Stengel and to that of Nervous and Mental Diseases under the charge of Drs Church and Patrick.

The work has an excellent index comprising nearly sixty pages of text which adds much to its value as a work of reference. To any one wishing to keep abreast of current medical literature we cannot too strongly recommend this Year Book. We sincerely hope that it will meet with sufficient encouragement to justify its establishment as a permanent publication.

TWENTIETH-CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science by Leading Authorities of Europe and America. Edited by Thomas L Stedman M D New York City. In twenty volumes. Vol VI Diseases of the Respiratory Organs Wm Wood & Co.

This volume well illustrates the inevitable unevenness that characterizes books written by many men. This is seen in style, assignment of space, and manner of handling the different subjects.

The best articles in this volume are those by Bosworth on Diseases of the Larynx, and Grainger Stewart and Gibson on Diseases of the Bronchial Tubes. Bosworth's descriptions of laryngeal perichondritis and tubercular laryngitis leave little to be asked. So too the articles of Stewart and Gibson on Bronchiectasis and Asthma are full and in every way satisfactory. The article on

Bronchiectasis, in particular, is rich in historical knowledge, and gives a complete description of the various views as to the etiology and pathology of this affection. Reference may be made here to the views still held by Bosworth, that membranous croup is an affection entirely distinct from diphtheria of the larynx. He claims ability to make a macroscopic differentiation between diphtheritic and membranous croup. He believes further that membranous croup, while an infectious disease, is not produced by the Klebs-Loeffler bacillus, but by a "croup germ," though what this germ is he fails to tell us.

The weakest point in the entire work is, we think, the pathology. Many of the articles set forth somewhat primitive, and certainly very confused, notions as to pathology and classification. Thus we find lupus of the nose, of the mouth and of the larynx described, some authors regarding it as allied to struma, others to scrofula, others again to tuberculosis, some denying absolutely any connection between lupus and tuberculosis.

Take the subject of tonsillitis also. The following varieties are described: acute catarrhal, herpetic, acute ulcerative, lacunar, caseous, non-diphtheritic, pseudo-membranous diphtheria, besides tonsillar abscess, tuberculosis, syphilis, mycosis, etc. The separation of the inflammations of the tonsil into these various forms, where the differentiation is made solely upon anatomical distinctions, leads to the multiplication of varieties and increases rather than simplifies the difficulty of diagnosis and treatment. Herpetic sore throat reveals most vague ideas as to its etiology, pathology, and true nature, it would be better to confess ignorance concerning it.

The pathology of diphtheria (page 282) is very meagre, confusing, unsatisfactory. The therapy of this most important affection receives but scanty treatment. It is worthless as a practical guide. The antitoxin treatment deserves a much fuller and more detailed exposition than is found under this head. Certainly, if bronchiectasis deserves the thirty-two pages given it, diphtheria deserves more than the nine pages it gets.

What is said under the heading of Bronchial Arteritis concerning inflammation of arteries in general and of bronchial arteries in particular, may be true. But the conclusion of the whole matter is that bronchial arteritis is a disease unrecognizable clinically, and practically unrecognizable post-mortem. Its description, therefore, seems scarcely called for—at any rate, not beyond the limits of a short paragraph.

We should take issue with the writers on one or two small points that attracted our attention in running through the book. We are somewhat surprised to note the faint praise that is accorded the galvano-cautery in the treatment of hypertrophic rhinitis (page 37). We feel also like challenging the statement made on page 138 that "chancre of the naso-pharynx is most frequently the consequence of inoculation by the contaminated finger of the physician who is making the examination of this region, or by infected instruments which are passed into the posterior nares." The possibilities of inoculation by other fingers than those of the physician, as well as by other means, cannot be overlooked, as is done by the author. It has been our experience also that the expiratory sound in emphysema, while prolonged, is usually faint, or at times almost inaudible. It is described, however, on page 666, as "greatly prolonged and harsh." The whole subject of emphysema is not treated in a manner worthy of its importance. The subject of pyemia of the lungs also is confusing in its details, confusing in its treatment.

We must say, therefore as regards the book as a whole that it is not satisfactory and scarcely represents the practice of the twentieth century nor as it seems to us the practice of the latter part of the nineteenth century. There is in reality very little in this volume but what can be found in any good text book on the practice of medicine.

J. B. HERRICK

A TREATISE ON THE MEDICAL AND SURGICAL DISEASES OF INFANCY AND CHILDHOOD. By J. Lewis Smith M.D. Eighth edition revised and enlarged with 273 illustrations and four plates. Lea Brothers & Co., New York and Philadelphia 1896.

The eighth edition of this old time standard text book comes to us revised and largely rewritten. The work is somewhat larger than the last edition the increase being found in several new chapters and a breadth of handling in certain of the older chapters rendered necessary by the advances in etiology, pathology, and therapeutics.

In the space at our disposal we cannot deal exhaustively with this work. The first seventy pages deal with infancy and childhood and contain chapters on Anatomy and Physiology, Care of the Mother in Pregnancy, Mortality of Early Life, Weight and Growth, Wet nursing, Quantity of Food, Artificial Feeding, Bathing, Clothing, Sleep and Exercise. The rules for nursing are carefully laid down and include a clear indication of when mothers should not nurse their children. Distinct preference is shown for wet nursing over artificial feeding. Sterilization of milk at high temperatures is condemned, but pasteurization (160° to 167°) is recommended though the scorbutic tendency of sterilized milk is not pointed out. Chapter X in the table of contents is said to deal with the 'Diagnosis of Infantile Feeding' while in the body of the work we are informed that it deals with the 'Diagnosis of Infantile Diseases'. This is evidently a defect in proof reading.

Part Two deals with diseases of the new born including malformations, local diseases, diarrhea, constipation and tetanus. For spina bifida the injection method is rather shown the preference while the still more ancient methods of ligating the sac are referred to. We are surprised to find no mention of the well devised plastic operations which have been recommended for the treatment of this condition.

Rachitis receives the extended consideration which its importance merits. The most potent cause is said to be the use of foods not sufficiently nutritious or not suited to the age and digestive powers of the child. The author notes the absence of this disease among the Japanese and the opinion of M. Remy to the effect that this latter is due to the nursing abilities of the Japanese women and to the giving of fat to young children. Chittle is also quoted as giving strong support to the view that an absence of fat and earthy salts in the diet of infants is the most important element in the causation of this disorder. It is to be regretted that the important contributions of Porcheimer and Christopher to the clinical conception of rachitis are not adequately considered.

That scrofula is not wholly banished from pathology is shown by the prominence given to it. Regarding the relation of this disorder to tuberculosis Van Merris is quoted as believing that scrofulous inflammation is a local tuberculosis while Jacobi thinks the presence of the tubercle bacillus in scrofulous disease is an accidental invasion. Alexander is cited as of the opinion that it

seems to be distinct from any microbic agency, while Noeldechen states that the close relation of these disorders is due to the fact that the scrofulous diathesis furnishes a favorable soil for the development of tuberculosis. The author's view is that scrofula "results from a variety of depressing agencies affecting the system in different ways, with the general result of impairing its vigor and lowering its tone. The theory seems improbable that these many and distinct agencies cause the phenomena of scrofula through the action of a microbe peculiar to this disease."

The chapters dealing with tuberculosis and syphilis are excellent. In the former condition creosote is strongly recommended, but not to the exclusion of more time-honored remedies. Mercury, preferably in the form of inunction, is advocated in the treatment of infantile syphilis.

There is little that has been added to our knowledge of the exanthemata. We cannot but commend the excellent description of diphtheria, and the exhaustive manner in which the author has considered the complications of paralysis and albuminuria. A mere notice of the antitoxin treatment is given, but no extended description of its technique. We certainly think the importance of the subject merited a supplemental note, even while the volume was in press. Perhaps later consideration would have justified more than the conservative statement that "statistics thus far are favorable for the antitoxin treatment, but it must be recollected that the type of the microbe diseases frequently changes so that the experience of several years is often necessary in order to determine the full value of a remedy."

The author states that he has observed thirty-six cases of malarial fever in children under three and one-half years. In one case, an infant of two weeks, he thinks it was derived from the mother through the fetal circulation. The possibility of its transmission through the milk must also be admitted. Typhoid fever is not infrequent in children, and is probably more common under six years than is generally supposed, although the younger the child the less the liability. The difficulty of diagnosis is pointed out, and the fact that in some cases it cannot be differentiated from a simple enterocolitis is admitted.

Cerebro-spinal fever is regarded as probably of microbic origin, but not contagious. Under the term "secondary cerebro spinal fever" the meningitis which so frequently accompanies this and other infectious diseases is described.

The remainder of the work is taken up with diseases of the nervous and digestive systems, and a description of the surgical operations peculiar to childhood.

AN AMERICAN TEXT-BOOK OF OBSTETRICS By American Authors Richard C Norris, M D, Editor Philadelphia W B Saunders

There are fifteen contributors to this volume, and they are men whose work can be taken as fairly representative of American progress.

We are justified in expecting much from the collaboration of such authorities as Barton Cooke Hirst, Theophilus Parvin, Edward Reynolds, James H Etheridge, Henry J Garrigues, and Howard A Kelly, upon the mechanism of labor, dystocia, diseases of the ovum, abortion, and puerperal infection, and from George A Piersol, Richard C Norris, Chauncey D Palmer, Henry

Schwarz, Charles Jewett Robert L. Dickinson Edward P. Davis, and J. Chalmers Cameron upon the physiology diagnosis hygiene and management of pregnancy the pathology of pregnancy and the puerperium and obstetrical surgery

The name of the late Dr. Charles Warrington Earle appears upon the list of authors although as the preface informs us the writing of the papers assigned to him was only fairly begun when his untimely and widely lamented death occurred. Dr. Earle's large experience in pediatrics makes any work of his in regard to the care and treatment of children of great value and it is most fitting that his work should be perpetuated in this great text book. His manuscripts upon Diseases of the Fetus in Utero and Pathology of the New born Infant, as revised and completed by Dr. M. J. Mergler will be most helpful to rational and practical therapeutics in a field too little explored.

In attempting to give a just and intelligent review of The American Text book, one is handicapped not so much by the size of the volume though there are 1009 pages Imperial octavo as by the scope and richness of the contents. It is hard to begin to praise and harder still to conclude. From the beginning to the end the arrangement and handling of subjects is a delight to the analytical mind.

The table of contents gives promise of the orderly sequence of arrangement, without which a scientific work is valueless and the index, thirty two pages leaves nothing to be desired.

Nothing in recent literature upon the subject is so admirable as Pierson's elaboration of the difficult problems of pelvic anatomy and fetal development, and with the complete and beautiful collection of plates which enrich the text this portion of the work is of immense value not only to the student and practitioner of obstetrics but to every lover of biology and kindred science. Nothing is lacking that pertains to any branch of midwifery. We should be tempted to make excerpts here and there from the text, did space permit.

Garrigues on Prevention of Puerperal Infection in Private Practice is notable, and his forceful words should be read by any who smile benignly at the mere thought of using such superfluous (antiseptic) measures in private practice.

Says Dr. Garrigues The hospital is now the safe place for a woman to be delivered in it is in private dwellings that the danger lurks. The poorest, the dirtiest and the most dissolute women are safely confined in the lying in asylum the richest, the youngest, the purest and the loveliest sometimes succumb in giving birth to a child in their own homes. As a matter of fact the mortality in private practice is twice as large as that in hospital practice or larger. *Out of every hundred, ninety five or even eighty nine women* delivered in New York or other large cities in private practice one dies that is up to 1.12 per cent. against 0.6, 0.5 or even 0.4 per cent. in the best lying in establishments.

Cameron on The Indications for Craniotomy and Embryotomy is to be commended for his humane and reasonable attitude toward this interminable and thus far indeterminate question.

Dr. Jewett's exposition of "Symphysiotomy" a history of its rise and progress results and present status is classic, and is illustrated worthily by a number of good drawings.

The art editor Robert L. Dickinson M.D. has achieved wonderful success in his department.

There are nearly nine hundred colored and half-tone illustrations, and the editors express themselves indebted to the unprecedented liberality of the publisher, who has made it possible thus to "re-illustrate an entire department of medicine."

Thus far, nothing but praise. Adverse criticism of the contents and arrangement, there can be none of moment, but as with the average medical text-book, so here, the literary setting is at times deplorable. It is a fact that out of the immense volume of medical publications there are very few books which can lay any claim to literary style or elegance. This ought not to be, for any thought or fact which is worth the committing to ink and paper deserves to be put in the very best form compatible with its nature and purport.

While, as is natural in the case of a book compiled by many writers, the standard of excellence varies in different articles, many portions of *The American Text-book* abound in evidences of gross carelessness in copy and in reading proof. One or two instances are sufficient.

On page 167 "Ballottment" is a pathognomonic sign of pregnancy, there being no other condition in which a solid body is found floating in the uterine cavity. The absence of this body does not preclude the possibility of pregnancy, for different conditions may prevent its being noticed," etc. I wonder if *body* should not read *sign*.

On page 175 we are told not to put too much confidence in "chloasma uterinum" as a sign of pregnancy, because this same skin affection which is caused by "physiological and pathological changes in the uterus and various disorders of the menstrual function," is also met with in single women, and even in men. Shades of Hermaphroditus! Can these things be?

HENRY PARKER NEWMAN

PROGRESS OF MEDICAL SCIENCE

MEDICINE

UNDER THE CHARGE OF JAMES B. HERRICK, A.B., M.D.

Adjunct Professor of Medicine, Rush Medical College. Attending Physician to the Cook County Hospital, Chicago.

Dangers of Lumbar Puncture —

Fürbringer (*Centralblatt für Innere Medizin*, Jan. 4, 1896) warns against the use of lumbar puncture as a therapeutic or diagnostic agent in the case of tumors of the brain, particularly those of the cerebellum. In March, 1895, in the Berlin Medical Society, he spoke of four fatal cases that had occurred in his own practice, two of the patients having cerebral tumors, and two being uremic. Since that time he has had a fifth fatal case in his own practice, and Lichtheim (*Berliner Klin. Woch.* No. 13, 1895) has reported another death. In all six of these cases death occurred in from six to forty hours after the exploratory puncture. Fürbringer's last case was as follows:

A man, strong and well developed, aged 29 years, came under observation complaining of severe headache of very variable intensity, frequent vomiting, and unsteady gait. Temperature was normal or subnormal, pulse 80 to 90, lungs, heart, abdomen and urine negative, there was inequality of the pupils and a beginning choked disc. Medicinal treatment being unavailing, Fürbringer decided to employ aspiration of the cerebro-spinal canal. Fifty cubic centimeters of a clear fluid escaped freely. The pulse remained unaltered, headache vanished, and the patient lay quiet and apathetic. Six hours later the pulse was reduced to 56, and respiration suddenly stopped. The autopsy showed a tumor occupying the position of the right cerebellar hemisphere and extending slightly over to the left. The cerebral ventricles were enormously dilated and filled with a large quantity of clear fluid. The spinal subarachnoid space contained but a very small amount of fluid.

Fürbringer is forced to the conclusion—after a study of the fatal cases, and also of several cases reported by other observers in which severe, though not fatal, symptoms followed soon after the exploratory puncture—that this procedure is the direct cause of death and that the death in these cases is in no sense accidental. He admits that in seeking for the cause of these unfortunate results

he is at a loss to explain them. He is sure that the method of aspiration is not in itself the cause. He is inclined to the view that the pathological narrowing of the communication between the fourth ventricle and the spinal subarachnoid space prevents the rapid equalization of the pressure in the spinal and cerebral subarachnoid spaces and the cerebral ventricles, and that this, in some way, accounts for the marked and fatal symptoms he has observed.

Etiology of Rheumatism —

In the *Wiener Klinische Wochenschrift*, Nos. 25 and 26, are contributions from Singer, Chvostik, and Kraus, on the etiology of rheumatism.

Singer examined bacteriologically the urine in seventeen cases of articular rheumatism, meeting with a positive result in sixteen cases, finding oftenest the staphylococcus *albus*, but also the staphylococcus *aureus*, streptococcus, etc. He believes that these results prove the causal connection between the organisms and the articular manifestations of the disease, and also that there is not an etiological unity in this affection.

Chvostik, employing more careful means, using a catheter in twelve cases, reached a negative result in nine. Three times he found micro-organisms, once the diplococcus *ureæ*, once, where the urine was not drawn by means of a catheter, the staphylococcus *albus*, and once an undetermined coccus that he believed came from the urethra. Chvostik believes that where great care is exercised in obtaining the urine, fewer organisms will be found, and further, that there is no warrant for assuming that organisms found in the urine in rheumatism are the cause of the disease. Experiments made by him upon animals show that for the localization of the inflammation in the joint, much depends upon the condition of the vessel-wall, the condition of the nerves, the kind of organism, and its virulence. He believes that the arthritis of rheumatism is the result more of certain toxic substances than of micro-organisms themselves.

Kraus has examined the urine and the blood in many infectious diseases. In puerperal processes and tuberculosis of the lungs he found staphylococci in the blood. He found them in the urine in pneumonia, pulmonary tuberculosis, typhoid, and nephritis. He found streptococci in the blood in puerperal fever and ulcerative endocarditis, in the urine in puerperal fever, nephritis, endocarditis. The bacterium *coli* was found in the urine in nephritis, scarlatina, parametritis, and puerperal fever. There is, therefore, he concludes,

no coincidence between the urinary and blood findings. These findings are only of value when a specific micro organism is found. The finding of the streptococcus, the staphylococcus, or the bacterium *coli*, has but a limited diagnostic value.

SURGERY

UNDER THE CHARGE OF WELLER VAN HOOK, A.B. M.D.
Professor of Surgery in the Chicago Polyclinic.

Alcohol as a Disinfectant for the Hands —

The advantage of using alcohol in the disinfection of the hands has been prominently emphasized during the last year. Ahlfeld and Vahle publish an interesting article in the *Deutsche Medicinische Wochenschrift* of February 6, 1896, supporting alcohol as a disinfecting agent.

Fürbringer supposes that the alcohol frees the hands of fat and allows the subsequently applied disinfectant to exercise a more powerful action upon the micro-organisms of the skin.

Reincke also ascribes to alcohol the property of taking up fatty substances from the skin, but since he demonstrated that the alcohol has in itself a subsequent disinfectant action upon the hands, he explains that the water is able to wash off the fat which, mixed with bacteria, had been dissolved by the action of the alcohol.

Kronig believes that the alcohol action is a deceptive one, that the alcohol does not kill bacteria, but that its astringent property so alters the skin that the bacteria are retained in the shrunken epidermis and cannot therefore grow upon nutrient gelatin.

Opposed to these three modes of explanation, Ahlfeld and Vahle emphasize the statement that alcohol has really a bactericidal property which, however, is able to exercise its action only under certain circumstances—namely, when the micro-organisms themselves contain water.

Before these two authors proceeded to make an experimental effort to establish their own theory of the action of alcohol, they commenced by experimental methods to confute the first mentioned theories. They found that ether, which removes fat from the hands more readily than does alcohol, did not give the same sterilizing effect, so that of thirty-six pupils who had endeavored to sterilize a finger in this manner only eight succeeded in producing a sterile digit—that is, 22.22 per cent. while of those who used alcohol according to the usual method, instead of ether, 88.88 per cent. succeeded in obtaining a clean finger.

rabbit, as follows, will be a fair sample of the results obtained in the whole series

Rabbit No 1, weight, 1556 grammes Subjected to four inoculations—1 Cc for the first three times, 5 Cc for the last Died in six weeks, much exhausted, weight of body, 779 grammes The last week the urine was acid and contained albumin, stools watery Spleen shrunken, anemic, soft, teasing readily, cut surface not showing the characteristic amyloid brilliancy, microscopic examination showed amyloid degeneration marked in the pulp and in the periphery of the follicles, giant cells containing amyloid presented marked accumulation of pigment, lymphoid elements contained no amyloid Liver atrophied and anemic, slight amyloid degeneration of intra-lobular capillaries, marked albuminoid degeneration of the liver cells Small intestine Walls thin, mucous membrane pale, marked amyloid degeneration of the villi and glands of Lieberkuhn, principally in the capillaries and connective tissue Kidneys Traces of amyloid in membrana propria of the convoluted tubules Supra-renal capsule Traces of amyloid in medullary substance No traces of amyloid in the abscess, nor in the muscles of the heart and trunk

The amyloid material of the rabbits gives all the characteristics of the human amyloid, and when isolated seems to be the same chemically The microscopic appearance of the organs, however, differs from that of man in the advanced stages The spleen is generally soft and shrunken, the cut surface does not give the characteristic amyloid brilliancy, the liver resembles more an albuminoid degeneration

In the animals experimented upon, the degeneration seemed to begin in the spleen, often being very advanced here when not found in any other organ This is apparently true in man as well In rabbits the degeneration is more marked in the gastro-intestinal canal than in the kidney or liver, the salivary glands seeming to stand next in order to the spleen The idea that the blood-forming organs are most invaded is not supported by these experiments, for the marrow of the bone, probably the most important of all, was never found amyloid They, however, showed that it is possible to have an amyloid degeneration localized in a single organ or in a part of that organ, as the follicles of the spleen

The degeneration was especially observed in the capillaries, arteriole-walls, and connective-tissue elements The cells of the organs seemed never to be invaded, except those of the spleen The presence of giant cells in the amyloid spleen is accounted for

in different ways. The author is inclined to think that they absorb the amyloid substance as a body foreign and injurious to the organism. This function would imply that the resolution of amyloid material is possible, and although contrary to the general idea as obtained from clinical information, yet there is much to favor the supposition. Amyloid degeneration in various neoplasms has been observed in parts removed by operation, and later it has been found that the remaining material has disappeared. Litter has also found that fragments of amyloid kidneys placed in the abdominal cavity of animals are absorbed, and here giant cells containing amyloid are numerous.

BACTERIOLOGY

UNDER THE CHARGE OF GEORGE H. WEAVER, M.D.
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The Production of Diphtheria Toxin —

Park and Williams (*Journal of Experimental Medicine*, January, 1896) make a detailed report of their experience in the production of diphtheria toxin to be used to inject horses in preparing anti-toxin. The work is credited to the Bacteriological Laboratory of the Health Department of the City of New York. The article closes with the following summary:

"Toxin of sufficient strength to kill a 400-gramme guinea pig in three days and a half in a dose of 0.025 Cc. developed in suitable bouillon, contained in ordinary Erlenmeyer flasks, within a period of twenty four hours. In such bouillon the toxin reached its greatest strength in from four to seven days. This period of time covered that of the greatest growth of the bacilli, as shown both by the appearance of the culture and by the number of colonies developing on agar plates.

"The bodies of the diphtheria bacilli did not at any time contain toxin in considerable amount.

"The type of growth of the bacilli and the rapidity and extent of the production of toxin depended more on the reaction of the bouillon than upon any other single factor.

"The best results were obtained in bouillon which, after being neutralized, had about seven cubic centimeters of normal soda solution added to each liter. An excessive amount of either acid or alkali prevented the development of toxin.

"Strong toxin was produced in bouillon containing peptone ranging from 1 to 10 per cent. The strength of toxin averaged

greater in the 2- and 4-per-cent peptone solutions than in the 1-per-cent

"When the stage of acid reaction was brief and the degree of acidity probably slight, strong toxin developed while the culture was still acid, but when the stage of acid reaction was prolonged, little if any toxin was produced until just before the fluid became alkaline

"Glucose is deleterious to the growth of the diphtheria bacillus and to the production of toxin when it is present in sufficient amounts to cause by its disintegration too great a degree of acidity in the fluid culture. When the acid resulting from decomposition of glucose is neutralized by the addition of alkali, the diphtheria bacillus again grows abundantly. Glucose is not present, at least as a rule, in sufficient amounts in the meat as obtained from the New York butchers to prevent the rapid production of strong toxin if the bouillon is made sufficiently alkaline

"In our experiments, when other conditions were similar, the strength of the toxin was in proportion to the virulence and vigor of growth of the bacillus employed "

The Escape of the Diphtheria Bacillus into the Blood and Organs —

Kanthack and Stephens (*British Medical Journal*, Jan 25, 1896) have communicated to the Pathological Society of London their observations upon eighteen cases of severe diphtheria. In all the cases the diphtheria bacilli were found in the lungs, in thirteen cases there was marked broncho-pneumonia, which the authors believed to be diphtheritic in nature. In most of the cases, tracheotomy had been performed. The bacilli were found in the spleen in nine out of twelve cases examined. For cultures they employed a medium prepared from ascitic fluid made strongly alkaline, to which 1.5 per cent agar-agar, 5 per cent glycerin, and 1 per cent grape-sugar had been added.

Bacteriology in Private Practice —

Jaques (*Chicago Medical Recorder*, January, 1896), in a paper read before the Chicago Medical Society, describes a convenient way of using Loeffler's blood-serum mixture. It consists in the use of small metal boxes, the size of a quarter, and several times its thickness, in which the medium is placed and sterilized as if in tubes, and sealed with paraffin. These can be carried about readily, present a considerable surface for inoculation, and can be incubated by carrying in a pocket near the surface of the body.

Gonorrhea of Rectum in Women —

Baer (*Deutsche Med Woch* 1896, No 8) records some interesting observations concerning the infection of the rectal mucous membrane by the gonococcus in women. Out of 296 cases of venereal diseases 22.6 per cent. showed rectal gonorrhea, and of 191 patients with genito-urinary gonorrhea 35.1 per cent. were found to have an infection of the rectum.

The infection may reach the rectum (1) by direct contamination through unnatural coitus (2) by perforation or communication of an organ with gonorrheal disease, into the rectum, and so causing a secondary infection (3) by introduction from without, through therapeutic manipulations, enemata, thermometer, or by the flowing of the gonorrheal secretion from the genitals to the anus.

THERAPEUTICS

UNDER THE CHARGE OF N. S. DAVIS JR. A.M. M.D.

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Treatment of Acute Endocarditis —

Richard Caton (*Lancet*, August 17 1895) uses a succession of small blisters along the course of the fourth, fifth, and sixth intercostal nerves, together with the internal use of potassium or sodium iodide, and reports that the treatment not only gives as much promise as any other, but has very little disturbing or weakening effect upon the patient. He has had one successful case, in which an aortic bruit disappeared.

The patients are kept in bed and as far as possible all exertion or exposure is prohibited. To prevent chills a long flannel night-shirt is worn, a stock of these garments being kept on purpose for rheumatic cases. Thus the profuse perspiration incident to the disease is not likely to be checked. A light milk diet is given. Gentle cholagogues are administered, and salicylates are given in such measure as the disease seems to demand. If the pain fails to yield in any joint immediately apply small blisters followed by poultices a method which rarely fails to give great relief. Hyperpyrexia or any special symptom receives appropriate treatment. The patient is kept in bed and on a light diet for a considerable time after the disappearance of pain.

There seems to be strong ground for believing that perfect quiet and rest and avoidance of chills during acute rheumatism lessens the liability to cardiac complication. Cold to the surface

undoubtedly increases the inflammation of synovial membranes, rheumatic inflammation of the endocardium is similar in kind and is likely to be affected similarly. His own experience certainly is in favor of this opinion. There is much divergence of opinion as to the proportion of cases in which the heart is attacked. Codet, the French writer, puts it down at 81 per cent, Picot at 78 per cent, Mansir and Shadwell's list from Guy's Hospital Reports gives over 50 per cent, the lowest average is 25 per cent. Caton has had 320 cases of febrile rheumatism, in many of which the fever was slight and temporary, his percentage was under 20. The great discrepancy in percentages is due to different conceptions of the meaning of the term "acute rheumatism." If it be restricted to the highly febrile type, the high estimates will probably be correct. According to his experience, endocarditis is not confined to pyrexial cases, but is more frequent in them.

As soon as the bruit is perceptible, or even prior to that, during the preliminary stage of "woolliness," he at once gives potassium or sodium iodide in ten-grain doses thrice daily in addition to the salicylates, and applies near the apex a blister one-half inch in diameter, as soon as the irritation from this subsides, he applies a second close to it, then a third, and so on, keeping the patient meantime as quiet as possible, strictly forbidding exertion, exposure, or too much nitrogenous food. He has seldom known the patient to complain of the blisters, which practically occasion little or no discomfort. The heart should be examined daily. Frequently in a week or in ten days he has had the satisfaction of noting a gradual subsidence of the bruit. Day by day it becomes less clear and distinct, until at length it is found to be only occasional, and at last to be entirely absent. Sometimes several weeks elapse before this desirable change is accomplished. He thinks the prolonged rest in bed has an important share in this good result. The thirty-nine cases which he treated on the above principle were, on the average, forty days in hospital, and were confined to bed for thirty-five or thirty-six days. When the bruit was gone, he kept the patient under observation for a while.

Of the results obtained, it will be observed from his list that in the thirteen cases that were either not treated at all or imperfectly treated by blistering, poulticing, leeching, etc., with an average residence in hospital of twenty-eight days, the result was that twelve left hospital with a bruit which he fears they retained throughout life. One case, however, lost his bruit spontaneously. But of the thirty-nine cases treated by prolonged rest, repeated blistering,

and the administration of iodides twenty nine left hospital with normal heart sounds in three the result was doubtful and seven left with a bruit. Thus series of twenty nine patients in whom distinctly marked bruits had been heard but who left the hospital with normal heart sounds constitutes a better result than he had ever ventured to hope for.

He claims for this method that it is essentially a reasonable one, on the following grounds. So-called 'counter irritation' has fallen much out of vogue in the profession partly because the old theories on which it was formerly supported are felt to be untenable. We cannot believe that a poultice or blister draws blood from, or acts directly in any manner upon, an organ in the thorax or abdomen, but it by no means follows that the practice is bad because the former theory was unsound. Such treatment has been partially abandoned also because it was carried to excess so as to cause pain and to enfeeble the patient. A small blister or a poultice to the skin of the thorax or abdomen, he believes affects the organs situated at some distance beneath solely through the nervous system. The nervous system may be summarized as a series of segments arranged in a line corresponding to the various somites of the body, each nerve segment governs to some extent the nutrition of its own somite, alike as regards epì-, meso- and hypo-blastic structures. If a cutaneous nerve is stimulated the nerve cells in the spinal and sympathetic centres are influenced and the impression is reflected to the visceral branches. It may be said that this is mere theory, but it is a theory which satisfactorily explains many familiar facts—e.g., it explains the fact that a slight chilling of the skin of the thorax may cause pneumonia or bronchitis, and that a splash of cold water will excite respiration in the infant or set going the action of the heart in a faint. He thinks he proved this theory in a paper read before the Physiological Society at Oxford a few years ago by demonstrating that stimulation of the surface skin altered the diameter of the arterioles in the lung and caused variation in the electrical condition (as manifested by the galvanometer) of thoracic and abdominal organs. It is quite clear that stimulation of the skin of the abdomen by heat by chemical irritation, by faradism, or by mechanical irritation produces instantly a variation in the electrical potential. Turning to more familiar evidence few persons he thinks, will deny the soothing effect of a poultice in a case of bronchitis nor can any explain that effect satisfactorily in any other manner than that which has been stated. When that form of impaired functional activity is occurring in the tissues of the heart

which is called "rheumatic endocarditis," a stimulus is applied to the nerve-centres, and the trophic nerves of the heart help nature to overcome the defective action. That is the theory on which this treatment by blistering is based, and he believes that the assisted natural powers succeed where, if unstimulated, they would fail.

Effects of Formalin and Formic Acid —

A. H. Pilliet (*Le Progrès Médical*) states that formalin is only slightly toxic, although a powerful antiseptic. To cause fatal results it must be given subcutaneously in doses of 0.25 gramme per kilogramme of body-weight. The effects of formalin and formic acid were found to be identical in so far as these produce lesions. These latter consisted principally of intense congestion, with evidence of cellular irritation and vacuolization, but no necrosis. These conditions were noted chiefly in the stomach, intestines, kidneys, liver, spleen, and supra-renal capsules. In one case the heart muscle was involved.

GYNECOLOGY AND OBSTETRICS

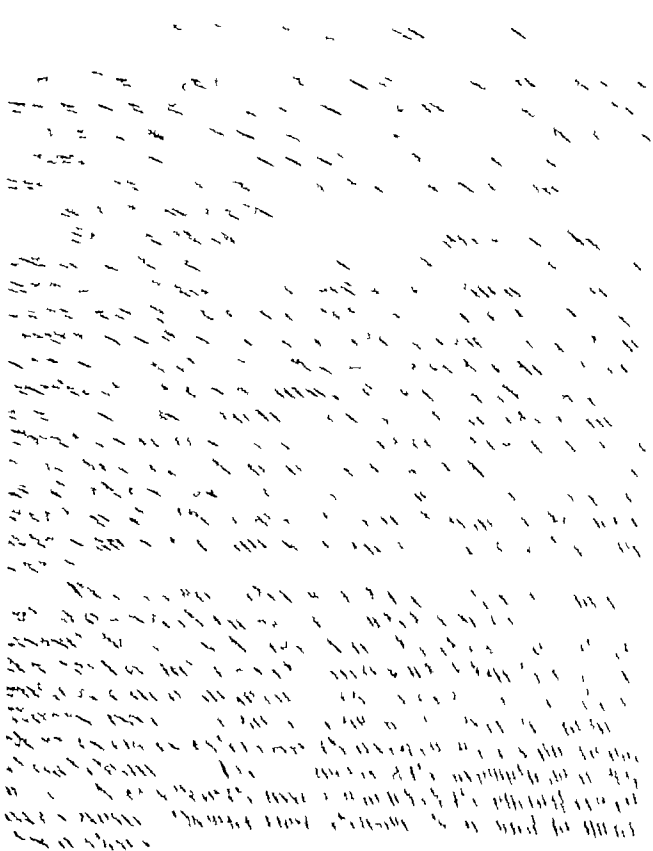
UNDER THE CHARGE OF HENRY P. NEWMAN, A. M., M. D.,

Professor of Clinical Gynecology in the College of Physicians and Surgeons of Chicago,
Professor of Gynecology in the Post-Graduate Medical School, Vice-President
of the Chicago Gynecological Society, etc

Again Hot Water —

In *La Semaine Médicale*, vol. III, No. 47, Dr. Paul Réclus is quoted as an ardent advocate of the hot-water treatment of atonic wounds, infected ulcers, and all superficial inflammations such as lymphangitis, phlebitis, circumscribed and diffuse abscess, furuncles, and anthrax. In his course at the Pitié Hospital he has been in the habit of devoting one lecture a year to the subject of the methodical use of hot water in surgery, attaching much importance to the degree of temperature in relation to the various diseased conditions. Hot-water bathing alleviates pain, limits the inflammation and circumscribes the purulent foci, when it does not check the suppuration. We subjoin that portion of the lecture which relates to the use of hot water in gynecology and gives the method which Dr. Réclus employs in treatment.

"The time is now past when apparently well informed surgeons proposed and practiced extirpation of the adnexa for the relief of pain on pressure in the vaginal culs-de-sac, ill-defined infiltration of the region, menstrual troubles, and a sensation of weight in the lumbar region. More than this is now required to justify lapar-



It is better to take them in the morning, when both the
bowels are strong. The injection added with water if a minimum
quantity of 35 c³, is placed on the right side the chamber is
introduced above the splinter and the tap is slowly opened so
that only a small quantity of liquid passes into the tube. The
slowness of the process prevents contraction of the muscular coat.
In this manner, therefore, a much larger quantity of water can be
introduced than if a strong jet were turned on at once. Although
nevertheless a desire to evacuate naturally it all, the water is kept
off until this desire has passed, after which the tap can be slowly
opened. The patient should rotate the chamber for half an hour or

which is called "rheumatic endocarditis" a stimulus is applied to the nerve-centres and the trophic nerves of the heart help nature to overcome the defective action. That is the theory on which this treatment by filtering is based, and he believes that the essential animal powers stored there, if stimulated, they would fail.

Effects of Formalin and Formic Acid.—

A. H. Miller, *La Presse Médicale*, states that formalin is only slightly toxic, although a powerful antiseptic. To cause fatal results it must be given subcutaneously in doses of 0.25 gramme per kilogramme of body-weight. The effects of formalin and formic acid were found to be identical in so far as these produce lesions. These latter consisted principally of intense congestion, with evidence of cellular infiltration and necrobiosis, but no necrosis. These conditions were noted chiefly in the stomach, intestines, kidneys, liver, spleen and suprarenal capsules. In one case the heart muscle was involved.

GYNECOLOGY AND OBSTETRICS.

ON THE USE OF HEAT IN GYNECOLOGY AND OBSTETRICS.

Presented at Annual Report of the College of Physicians and Surgeons of Chicago.
By ROBERT J. COOPER, M.D., of the Post-Graduate Medical School, Northwestern
University, Chicago, Central Medical Society.

Against Hot Water.—

In *The Southern Medical*, vol. III, No. 47, Dr. Paul Reclus is quoted as an ardent advocate of the hot-water treatment of arthritic wounds, internal ulcers, and all superficial inflammations such as lymphangitis, phlebitis, thrombosed and diffuse abscess, furuncles, and carbuncles. In his course at the Pitié Hospital he has been in the habit of devoting one lecture a year to the subject of the method of use of hot water in surgery, attaching much importance to the degree of temperature in relation to the various diseased conditions. Hot-water bathing alleviates pain, limits the inflammation and demonstrates the purulent foci when it does not check the suppuration. He admits that portion of the lecture which relates to the use of hot water in gynecology and gives the method which Dr. Reclus employs in treatment:

"The time is not far when apparently well informed surgeons proposed and provided extirpation of the uterus for the relief of pain or pressure in the vaginal and lower ill-defined inflammation of the region, menstrual troubles, and a sensation of weight in the lumbar region. Now that this is not required in fairly impar-

is potent for evil as well as good, that the good effects are apt to be but transitory and endure only during the administration of the drug, and that it is not safe to continue the treatment indefinitely

In the *New York Medical Journal* of January 11, 1896, Thayer reports a typical case of acromegaly with marked enlargement of the thyroid gland, which was treated for two months with thyroid extract without beneficial effect

Raynaud's Disease in Infants and Children.—

It is commonly supposed and generally taught that Raynaud's disease does not occur in childhood and is very rare under the age of 18, but Maugue (abstract in *Journ de Méd et de Chir Prat*, Sept. 25 1895), having collected 171 cases of this disease, finds the ages as follows 6 under two years, 5 in the third year, 35 between four and eighteen, 33 between eighteen and twenty, 46 between thirty and forty three, and 46 between forty three and seventy seven. He reports three original cases occurring during the first year of life, and three in infants two years old. The proportion, then, of cases to any one year is fully as high in the first years of life as it is later. In this connection it is of interest to note that a case has recently been reported by Batton (*Philadelphia Polydinc*, March 30, 1895) in a child of three. The case seems to have been typical in every respect, the disease affecting the hands and feet, both ears, and the tip of the nose, there was no gangrene, and rapid improvement followed the administration of nitroglycerin

LARYNGOLOGY AND OTOTOLOGY

UNDER THE CHARGE OF W. E. CASSELBERRY, M.D.

Professor of Therapeutics and of Laryngology and Rhinology Northwestern University
Medical School, Chicago Laryngologist and Rhinologist to St. Luke's
Hospital Laryngologist to Wesley Hospital, etc.

Treatment and Prevention of Nasal and Post-nasal Catarrh in Young Children —

Dr B J Bermann (*Archives of Pediatrics*, Oct. 19, 1895), after criticising the radical methods of treatment now so much in vogue, relates his own method of practice, which seems particularly applicable to a large number of cases which occur in general practice. He says an infant with a cold in the head and imperfect breathing should always be treated although it be but a few days old. He employs for this purpose a 2 per-cent solution of nitrate of silver, applied with a brush. There are other methods possibly equally

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.,

Professor of Neurology in the Chicago Polyclinic Consulting Neurologist to the Illinois Eastern Hospital for the Insane

The Thyroid Treatment of Acromegaly —

Among the rather numerous cases of acromegaly reported in the last three years have been a few that were benefited by the administration of thyroid extract (Putnam, Parsons, Caton). To these, Bruns (*Neurolog. Centralblatt*, Dec. 15, 1895) adds one case. The patient was a married woman, aged 24, and the disease had begun about two years before the examination, following an abortion. The enlargement of the face, hands and feet was typical, and the clavicle, sternum and ribs were also involved in the hypertrophic process. The internal organs, eyes and cranial nerves were intact. Sensation and reflexes normal. No atrophy, fibrillary twitching, or changes in the electric reactions—that is, no symptoms of syringomyelia. In spite of the great physical changes the patient complained principally of general nervous symptoms: she was very nervous, excitable, anxious, wept easily, and slept poorly. She was rarely free from headache, and suffered from all kinds of paresthesiæ and pains in the upper extremities. All these troubles were aggravated by exertion, so that she could do no work, especially fine hand-work—which fact depressed her exceedingly. She was put on extract of sheep's thyroid, with immediate improvement in all the nervous symptoms. The headache, pains and paresthesiæ left, so she could again follow her ordinary pursuits. The mental state markedly improved and she began to sleep well. The swelling of the hands also diminished, but this was due simply to a general loss of flesh, which is often caused by the administration of thyroids, and throughout the treatment the preparation apparently had no special effect upon the peculiar enlargements of the disease. After two months of this marked general improvement, the thyroid being continued, a striking change occurred. The pulse gradually increased to 120 (recumbent posture), and the patient became very weak and exceedingly "chlorotic." The glandular treatment was then stopped, quiet enjoined, and iron given, but while the patient was still quite anemic and the pulse 100 the pains, paresthesiæ, etc., returned.

In this case, then, the thyroid extract seemed to produce quite an improvement in the general condition and suffering, but showed again that in this remedy we have no harmless agent, but one that

tionable to every one who has carefully studied the anatomical preparations of this region. They show how easily the lamina cribrosa can be pierced and the brain reached by this method. The exploratory opening of the frontal sinus from without is the only procedure in many cases which can confirm the presence or absence of suppuration, and should acquire greater importance in the future. We need not use immediately the hammer and chisel, which require an anesthetic. The hand drill is slow in action, the dental foot machine, however, fitted with drills two or three millimeters broad, which penetrate only three or four millimeters, may be employed. The author has used this last method only in one case as yet, but then without an anesthetic. After shaving off half the eyebrow, thoroughly cleaning the region, making an incision about $1\frac{1}{2}$ centimeters in length along the edge of the orbit to the root of the nose, and dividing the soft tissues to the bone, the sinus is entered close above the root of the nose. Exploratory syringing is then made. If pus does not appear in the black basin which receives the washings, nor when a subsequent irrigation is carried out on the following day, the opening is allowed to close. On the other hand, if pus is present, it will be necessary to adopt one of the following procedures: (1) to widen the opening to 1 or $1\frac{1}{2}$ centimeters by means of a trephine fitted to the dental engine, or even to make two such openings; (2) to remove the orbital wall of the sinus by Jansen's method; (3) to remove the entire anterior wall of the sinus according to the method commonly in vogue in surgery; (4) to employ a method just brought before the Congress of German Surgeons by Czerny, which consists in making an osteoplastic resection of the anterior wall of the sinus.

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF WM. L. BAUM, M.D.

Professor of Dermatology and Syphilology in the Post-graduate Medical School Chicago
Fellow of the Chicago Academy of Medicine.

A Case of Mycosis Fungoides —

Dr Leshe Roberts (*The Lancet* Nov 23, 1895) reports a case of mycosis fungoides, remarking that there is no cutaneous disease in which we meet so many strange phenomena. The rarity of its occurrence, its apparent chronic benignness passing swiftly into malignancy, our ignorance of the nature of the disease and the means of controlling it and the pathological problems which arise from it — these are not merely fitted to awaken scientific curiosity,

effective and less disagreeable to the patient. For hypertrophy of the turbinated bodies he has an original and simple method of cauterization by means of trichloroacetic acid. The instrument used is a glass tube, drawn out very even, and bent at a proper angle. It is unnecessary to use any dilution of the acid. A certain amount of the crystals in a bottle will melt in an ordinary temperature, and this is drawn up by suction into the glass tube, where it remains by capillary attraction. The tube will hold only a small fraction of a drop, so that no excess can be applied. After thoroughly cocaineizing with 4-per-cent solution, the acid is applied to the hypertrophic places only. It does not form a slough, and the applications may be repeated at intervals of one to two weeks, which will result in the hypertrophies melting away, the normal mucous membrane remaining. In like manner is treated polypoid degeneration of the turbinated bodies. An actual polypus is removed by surgical means, to its base or to the affected ethmoid bone, if accessible, the acid is applied. For deflection of the septum, the author employs electrolysis as a more gentle means than the ordinary surgical methods in vogue. This method is particularly effective with children, whose septa have not undergone such dense ossification as may take place with adults. He has not yet seen nasal obstruction from septal spurs in children which could not be sufficiently remedied by this method. It is bloodless, not especially painful, and not followed by much reaction. The bipolar needles are used, and 10 milliamperes of current applied for about ten minutes.

The Operative and Dietetic Treatment of Suppuration in the Accessory Cavities of the Nose —

Dr. Ziem's papers on empyema of the antrum of Highmore have already been reviewed in previous numbers of *MEDICINE*. In regard to suppuration in the frontal sinus, the author says (*Journal of Laryngology, Rhinology, and Otology*, December, 1895) he cannot recommend the application of the galvano-cautery to the anterior end of the middle turbinated body for the purpose of restoring the patency of the naso-frontal canal. He deprecates the removal of the anterior end of the middle turbinated body, frequently done for the same purpose. Probing and syringing through the natural orifice, or *canalis frontalis*, yield but very doubtful results, and are not considered free from danger. Moure is right in maintaining that a false passage may be easily made and the patient seriously injured. Schaeffer's method of breaking through the inferior wall of the sinus from the nose must also appear objec-

tionable to every one who has carefully studied the anatomical preparations of this region. They show how easily the lamina cribrosa can be pierced and the brain reached by this method. The exploratory opening of the frontal sinus from without is the only procedure in many cases which can confirm the presence or absence of suppuration, and should acquire greater importance in the future. We need not use immediately the hammer and chisel, which require an anesthetic. The hand drill is slow in action, the dental foot machine, however, fitted with drills two or three millimeters broad, which penetrate only three or four millimeters, may be employed. The author has used this last method only in one case as yet but then without an anesthetic. After shaving off half the eyebrow, thoroughly cleaning the region, making an incision about $1\frac{1}{2}$ centimeters in length along the edge of the orbit to the root of the nose, and dividing the soft tissues to the bone, the sinus is entered close above the root of the nose. Exploratory syringing is then made. If pus does not appear in the black basin which receives the washings, nor when a subsequent irrigation is carried out on the following day, the opening is allowed to close. On the other hand, if pus is present, it will be necessary to adopt one of the following procedures: (1) to widen the opening to 1 or $1\frac{1}{2}$ centimeters by means of a trephine fitted to the dental engine, or even to make two such openings; (2) to remove the orbital wall of the sinus by Jansen's method; (3) to remove the entire anterior wall of the sinus according to the method commonly in vogue in surgery; (4) to employ a method just brought before the Congress of German Surgeons by Czerny, which consists in making an osteoplastic resection of the anterior wall of the sinus.

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but impose on those who are privileged to observe them the duty of contributing something, if possible, to their elucidation

The patient, a spinster, had her strength and nerves severely tried by nursing her father, who was bedridden, suffering from paraplegia with incontinence of urine and feces. The first appearance of her skin disease was referred, by her, somewhat indefinitely to four or five years previous, when a moist eruption appeared on the left arm, which resisted all treatment and eventually disappeared spontaneously. Later, redness and swelling were noticed in the right leg, and later still on the right wrist, where a "boil" developed, which was lanced, with subsequent relief. This irregular state of cutaneous health continued till about the beginning of 1894, when the head and face became affected with a moist eruption. The patient was treated for eczema, but with no benefit. During the year the entire cutaneous surface became affected with a dry, pruritic, desquamative dermatitis. About three or four weeks before her admission to the infirmary, small tumors, mistaken for boils, arose in various parts of the trunk, arms, and face. Her health was failing when by medical advice she came under the author's care on November 5, 1894.

During the earlier years of the patient's illness the skin lesions were superficial, apparently benign, and took the form of a dermatitis. This is the rule in mycosis fungoides. The pre-tumor "eruption" is polymorphous—erythematous, eczematoid, and lichenoid. Phillippon's histological researches on the nature of these "eruptions" show that they are not of the nature of a dermatitis, but are veritable intra-dermic neoplasms confined to the papillary and subpapillary layers of the derma and associated with some increased cell-activity in the epidermis. The skin over the entire body, head and limbs was changed in respect to color, density, integrity of parts, and configuration. The scalp was covered with excoriated spots, and much hair was lost, what remained was dry and lustreless. The surface of the scalp was desquamating freely. The face was red and moist, the condition resembling a weeping eczema, the discharge stiffened linen. The eyelids of the left eye were red and swollen and could only be partially opened. A livid-colored tumor extended from the outer canthus of the left eye to the left ear, part of the auricle of which it involved, it was hemispherical in shape, slightly irregular, ulcerated in parts, moist with discharge, and soft and elastic to the touch. A flat tumor the size of a silver half-dollar was situated on the forehead, its margins sloping into surrounding unhealthy-looking skin.

The discoloration of the trunk resembled somewhat that of a typhus skin, and was covered with fine scales, harsh to the touch. The right breast was in part red and covered with scabs. Several tumors, varying in size from a hazelnut to a pigeon's egg, arose discretely from the front and back of the trunk. The neoplasms arose gradually out of the surrounding skin and sloped upwards to a flattened apex somewhat like a cushion pushed up in the centre. They were dull red in color, and soft and elastic to the touch, some were discharging an offensive smelling pus, and others were ulcerating. There were numerous scab-colored points scattered all over the back of the trunk. The skin of the arms was thickened and rough, with numerous scab-colored papules. There was induration of the skin of the fingers, which were bent on the palm, and also considerable hyperkeratosis of the palms. The nails were more or less affected by loss of lustre, flattening of convexity and prominent longitudinal ridges. Both hands had a withered, dried up appearance. The legs were considerably swollen and eczematoid in appearance, the skin was indurated and covered with thin scabs of yellowish color. There was well marked edema of both dorsal surfaces of the feet which were covered with thin scabs. The outer side of the right foot was excoriated. The nails of the toes were much deformed and partially destroyed. Itching was very severe at times, but seemed to be intermittent in its attacks. The cutaneous lymphatic glands were not enlarged. The pulse was 100, temperature 99.8° , and respiration 18. There was no cough or expectoration. The urine was slightly alkaline, its specific gravity 1.022, and showed a slight cloud of phosphates on boiling.

With regard to the histology of the case, there should be noted

1. *Skin free from tumor and forming seat of "eczematoid eruption"* The portion of skin was taken from the outer side of the thigh. The primary and essential changes had taken place in the papillary body (including the portion immediately beneath the papillae). This portion of the derma was differentiated from the subjacent part by a sharp line, and after hematoxylin staining became striking and conspicuous. The normal fibrous tissue had been replaced by a cellular neoplasm (not by cell infiltration, for there was not a trace of inflammatory action) consisting of cells derived from the pre-existing connective-tissue cells, round or oval in shape, and nucleated. The fibrillae were sparse and delicate. The papillae were narrower and a little longer than normal. The most conspicuous feature in the pars reticularis was the rhomboidal meshwork of hypertrophied elastic tissue. This was very noticeable

even without special staining. The elastic meshwork was filled with a granular matrix which stained with carmine. The white fibres were inconspicuous. The connective-tissue corpuscles were increased. The epidermis was slightly altered. The cones were broader and a little longer than usual in this position, and the corneous layer somewhat thicker. The sweat-glands appeared to be normal. There were no follicles in the piece of tissue examined.

2 *Skin from palm, epidermis very much hypertrophied, but always free from "tumor" formation* (a) Epidermis. This was about three times the average thickness, hyperplasia noticeable in all the layers. The germinating layer consisted of two or three rows of cells whose nuclei were more deeply stained than those of the superjacent cells. The granular layer was increased in thickness. The prickle cells were swollen and granular, the intercellular spaces a little wider than normal. The horny layer was enormously hypertrophied and had some peculiar features, the cells in the lower two-thirds of the stratum were enucleated and swollen, and separated apparently one from another by shining and refractile clefts. In addition to these intercellular clefts there were numerous irregularly shaped spaces filled with some granular material fixed with absolute alcohol and stained blue by hematoxylin. Some of these spaces measured 60 micromillimeters in length and about 20 micromillimeters in breadth, others were much smaller than this, and others again considerably longer. Probably these represented intra-epidermic vesicular collections of fluid, but whether edematous or inflammatory the author could not determine from the microscopical appearance. (b) Papillary body. The connective-tissue cells were much increased, but the fibrillar element was still apparent, it was not so highly cellular as in the specimen taken from the thigh. There was a total absence of cell-infiltration. The capillaries were distended and more numerous than in the specimen from the thigh. (c) Derma. The pars reticularis was not so obvious or the elastic fibres so large as in the specimen from the thigh. The connective-tissue corpuscles were much increased in number. Strands of spindle-shaped cells ran horizontally through the derma, they seemed to invest capillaries.

3 *The scalp*. A portion was selected free from tumor, but otherwise unhealthy. The epidermis was rather thinned than hypertrophied. The papillary body was more or less cellular. The follicles were considerably affected so far as concerned the papillæ and fibrous investments, these participated in the cellular change which affected the papillary body. There was some wasting of the

bulb and pilogenic cells, but otherwise the epithelial portions of the follicle appeared normal. A noticeable feature was the very oblique direction of the follicles, which was greatly in excess of the natural obliquity. This oblique direction was likewise taken by the epithelial cones and dermal papillæ. Caustic potash solution had the effect of more or less completely correcting this obliquity. The reticulate arrangement of the elastic fibres was well seen.

4 *Tumor in early stage* Elastic tissue enters very largely into the construction of both the early and the late fungating tumors, but the author had found it rather more plentiful in the young tumors. It was disposed in the form of a meshwork which became very noticeable after maceration of sections in a solution of caustic potash. The only real distinction between the early and late tumors seemed to consist in the closer packing of the embryonic cells in the latter. Blood vessels were scarce, and formed in this respect a notable contrast with sarcomata. As regards the epidermis, the author's sections did not show the passivity and thinning which Phillipson describes, on the contrary, there was a highly irregular hypertrophy of the epithelial cones, consisting of granular and unhealthy cells. In some places the cones were enlarged and in others entirely effaced. Cup-shaped depressions in the horny epidermis, filled with corneous tissue, were noticed in the sections of the fungating tumors.

It must be confessed that the facts of *mycosis fungoides* are among the dark writings of pathology. The author, after viewing his case in the light of the now extensive literature on the subject, deduces the following propositions:

1 There is neither clinical nor histological unity in the picture of *mycosis fungoides* but variations of which the limit is not yet fixed.

2 From beginning to end the disease is neoplastic and not inflammatory: the so-called eczematoid lichenoid eruptions are neoplasms *en nappe*.

3 The papillary body is conspicuously differentiated from the derma proper: the origin of the disease is probably in the papillary body: the change consisting in an over multiplication of the pre-existing connective-tissue corpuscles.

4 The rest of the derma is over-cellular, and there is an increase in the reticular elastic tissue which is obvious without special staining or maceration.

5 The disease from the point of view of its evolution and anatomy, presents suggestive analogies with embryonic cutaneous

tissues and embryonic processes—*c g*, rapid evolution followed by rapid involution

6 The term "granuloma," being vague and generic, is not a wisely chosen substitute for the name "mycosis fungoides"

7 There is at present no evidence worthy of confidence for believing in the microbic origin of the disease

8 While the disease is allied clinically to sarcoma cutis, there are many notable differences—thus, the mycosis tumors involute very commonly, and may disappear entirely, leaving a disorganized skin but absolutely no scar, they do not spread into the interior by the veins or by the lymphatics. The chief seat of mycosis is the papillary body, but in sarcomata, according to Funk, we find the densest cell masses in the subpapillary layer, the papillæ being free

9 Mycosis differs from lymphadenoma (*lymphadénie cutanée* of the French authors) by the fact that the lymphatic glands and spleen are not generally affected, and may be absolutely free from beginning to end of the disease

OPHTHALMOLOGY

UNDER THE CHARGE OF HENRY GRADLE, M D, CHICAGO

The Etiology of Acute Conjunctivitis —

V Morax and G W Beach present the present state of our knowledge concerning the etiology of different forms of acute conjunctivitis, in the January number of *Archives of Ophthalmology*. The researches of different authors have demonstrated as the cause of conjunctivitis the following germs, viz first, the gonococcus in the acute gonorrheal form, and in the corresponding disease of newborn infants, second, the diphtheria bacillus in the diphtheritic form of conjunctivitis, third, streptococci in the pseudo-membranous conjunctivitis observed in children especially after measles or scarlet fever, and also in the conjunctivitis sometimes associated with acute inflammations of the lachrymal duct, fourth, the pneumococcus in certain epidemic forms of conjunctivitis, and fifth, the bacillus named after its discoverer—Weeks—in the acute contagious conjunctivitis commonly known as pink-eye. This latter form has been the subject of personal study by the writers. The bacillus was first found by Koch in Egypt in 1883, and then described at length in 1885 by Weeks. Its importance has since been confirmed by others, as well as by the present authors, who were able to demonstrate its presence microscopically in all the characteristic cases of

contagious conjunctivitis. It is a very small bacillus, easily seen in stained slides, partly free and partly in the interior of the pus corpuscles. Cultures could be only obtained with some difficulty, on the surface of moist peptone-agar, the colonies are small and transparent. It grows best on the surface of solidified serum or similar media. Inoculations in the eyes of animals were negative, but the inoculation of the eyes of one of the authors from a culture gave rise to a severe conjunctivitis after three days of incubation. In sections made from the conjunctiva of living subjects, the bacillus was seen between the superficial epithelial cells and the leucocytes adhering to them.

The conjunctivitis produced by this form is of variable intensity. In rare instances the cornea becomes involved, and even deep ulceration may take place. The authors consider daily applications of a 2 per cent. solution of nitrate of silver as the best treatment.

The Removal of a Cavernous Angelioma from the Depth of the Orbit, with Preservation of the Eye —

In the January number of the *Archives of Ophthalmology*, H. Knapp records a rare case of a cavernous angioma behind the eyeball. The eye was pushed forward without pain. The tumor had been of slow growth, but had caused neuro-retinitis and considerable impairment of sight. The operation was done under ether, the tendon of the internal rectus was severed and held by a thread. By blunt dissection the tumor was isolated, and it was found possible to remove it without injury to the optic nerve. The rectus muscle was stitched in place, and uneventful recovery occurred, with restoration of moderate sight.

The removed tumor was found to be elliptical in shape, 37 millimeters long and 24×16 millimeters thick, and entirely encapsulated. It consisted wholly of blood vessels.

GENITO URINARY DISEASES

UNDER THE CHARGE OF G. FRANK JADSON, M.D.

Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Chicago College of Physician and Surgeons.

External Urethrotomy and Urethrectomy —

Dr. Fred Jenner Hodges, in the *Fort Wayne Medical Magazine*, says that in many respects the laws of surgery are very like those of the commonwealth. In both, certain principles of action may be recognized and quite generally observed years in advance of their

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External Urethrotomy and Urethrectomy —

Dr. Fred Jenner Hodges, in the *Fort Wayne Medical Magazine*, says that in many respects the laws of surgery are very like those of the commonwealth. In both, certain principles of action may be recognized and quite generally observed years in advance of their

formal adoption Recent writers upon urethral surgery (Moulin, White, Jacobson) quote Syme and Cock as originators of the two types of procedures now designated respectively as external urethrotomy and perineal section, yet neither of these gentlemen really originated any essential part of the operations which bear their names, or did more than publish formal descriptions of procedures that had been largely employed through many preceding generations In like manner the writer, well aware that no claim of originality or novelty can be advanced regarding any single feature or step of the operations about to be described, feels that their results are so far superior to those possible from the operations ordinarily done that a somewhat lengthy exposition of them may not be amiss

The operations for close stricture of the deep urethra still in general use were devised when primary union in any region of the body was an event, and in the urinary tract an impossibility, as a consequence, even in operations undertaken for the relief of cicatricial tissue, the wound is commonly left to granulate, thus not infrequently producing, in time, a worse condition than that for which the operation was undertaken

The ideal operation for close or markedly retractile strictures, with or without fistula, must, aside from (*a*) safety, possess as prominent features, (*b*) thoroughness, and (*c*) permanence of results These indications are so fully met by the modern external urethrotomy or urethrectomy, when completed by immediate suture and the retained *full-sized* soft catheter, as to leave little to be desired Poncet has shown that while the mass cicatrix resulting from a granulating wound is strongly and persistently retractile, the linear scar left by primary union is hardly at all so The writer began doing immediate suture of urethra and perineal wound in 1891, an innovation he has never had occasion to regret If no leakage occurs, much is gained, if there is leakage, you can, if *indicated*, remove the sutures, open up the wound, and yet lose nothing At the time the author adopted this plan he was ignorant of the previous work in this line done by König (1882), Heusner (1883), Poncet (1888), and Hagler (1889), each of whom had independently hit upon the same plan of procedure, and still later (1893) Manly, like himself ignorant of the foregoing, but following the suggestions of his friend Wile, based upon experience with immediate suture in rupture, excised the strictured portion of the urethra Sir C Ball, in 1851, in two traumatic cases presenting fistula, performed immediate suture, with excellent results A year

before, a number of similar cases—which Manly also overlooked—had been reported by Guyon, Albarran, Harteloup Janon, Quenu, Vegnard, and Wartel, the method in their hands having proven particularly satisfactory

In cases of close retractile stricture of the deep urethra with or without sinuses, the writer now proceeds as follows

The patient is prepared by the administration during a week or so of diuretin, benzoic acid, or salol with enough Rochelle salts to keep the bowels freely open. On the morning of the operation the lower bowel is flushed until the fluid returns clear, the thighs and perineum thoroughly scrubbed the site of the operation shaved, and if the stricture is permeable the bladder is thoroughly irrigated with hot boric solution, a portion of which is allowed to remain. The patient is then placed in an exaggerated lithotomy position and anesthetized. A full sized steel sound is now passed by the operator until its tip rests upon the stricture, when it is given to an assistant who, while keeping it steady in the middle line, depresses the handle, at the same time pressing the sound downward, causing its beak to present prominently in the perineum.

An incision, exactly in the middle line, is carried an inch and a half backward from a point immediately behind the beak of the sound as it presents in the perineum. The object of the incision is to longitudinally bisect (Brodie) the cicatricial remnant of the urethra, rather than to cut down upon the sound—which is in normal urethra—or to open the canal back of the narrowed part. A thorough knowledge of the anatomy of the part—without which, as Mr Coulson many years ago remarked, the surgeon “has no business to practice the operative part of the profession”—with a clear conception of exactly what is sought to be accomplished, enables one to readily divide the thickened wall of the urethra down to the remnant of its canal. The difference in feel, under the knife, of the cicatricial tissue, and of the normal urethral wall before and behind, is so noticeable as to have drawn comments from almost every surgeon who has written of this operation. The transition from the gritty cartilaginous feel to the soft elasticity of normal urethra, immediately advises one when the necessary incision is completed.

A full sized soft catheter attached to a fountain syringe, is carried through the wound into the bladder, which is then thoroughly irrigated—first, if foul, with 50 per cent peroxide of hydrogen or dilute sublimate (1:1000) solution, then repeatedly with warm boric solution a part of which is left in to later be forced out by compression of the bladder through the belly walls

The *largest* soft catheter (No 28 to 32 French) which the pendulous urethra will take is now freely lubricated with carbolized vaselin and passed through the sound urethra and wound into the bladder, the cut urethra and peri-urethral tissues are brought over it and united by fine catgut, and the external wound is accurately coapted with silkworm-gut

Sterilized gauze and a T-bandage completes the dressing In those instances in which the stricture is so dense as to seemingly convert a section of the urethra into a block of cartilage, it is best to make a complete resection, cutting the tube squarely across just above and below the constriction, and dissecting out the resected portion In this event two or three fine catgut sutures are passed in the upper aspect of the segments, bringing the latter together, before the catheter is passed, after which the steps are the same as in the preceding Hagler, from a review of his cases, believed a "submucous" (peri-urethral) suture preferable to one that passes through the mucosa itself, as less liable to tear out and give rise to leakage He advised the retained catheter, but failed to use one that would completely fill the urethra, and so did not gain its full utility

White uses the full-sized catheter and primary urethral suture, and obtains results scarcely less than ideal in most cases He fails, however—as does Hagler—to give the urethra the support afforded by suture of the perineal wound, thereby assuming an unnecessary danger of leakage and fistula

After completing the dressing as described, a clamp, such as ordinarily comes with a fountain syringe, is slipped over the catheter, which is then enveloped in gauze, and the patient is ready for bed The urine should at first be drawn every hour or so by simply unclamping the catheter, this is attended by no discomfort or inconvenience except a disagreeable "chug" as the last drops come away In fact, your patient's comfort will increase from the moment of the operation, he will have little or no pain and no elevation of temperature unless it existed previously, in which event a speedy improvement follows Twice each twenty-four hours for the first few days, the bladder should be irrigated with warm boric solution, with sufficient thoroughness to insure the complete removal of clots or other débris After the second day—as a part of the cleansing process—after free irrigation, the catheter is withdrawn, leaving the bladder filled with the solution, which the patient is allowed to expel naturally About the fifth or sixth day a full-sized steel sound is passed, and again a week later At the

end of a week or ten days the catheter is discontinued, and simply passed by the nurse or the patient himself every day or two gradually lengthening out the interval to a full week. At the end of a month the patient may be dismissed with instructions to report if at any time a full sized catheter does not easily and comfortably pass into the bladder.

There is, of course, still a great diversity of opinion among even the leaders of the profession as to the choice of treatment in close strictures of the deep urethra, but in the light of personal experience with the operation as just described, and of that of the writers quoted as employing practically identical procedures, it would seem that the ideal operation for the relief of this condition was at hand.

Keyes in this country, and Reginald Harrison in England, have given the very considerable weight of their favor to Wolfier's urethroplasty in cases of extensive cicatrization, particularly when complicated by fistula, and have reported valuable and instructive personal cases, as have also, more recently, Villard and Sapieko. But their results with this tedious, uncertain, and technically difficult procedure scarcely equal certainly do not surpass those of urethrectomy and primary suture in the hands of Pollet, Southam, and White. In Pollet's case the perineal tissues were brawny cartilaginous, and riddled with fistulæ necessitating the removal of an inflamed mass the size of an orange and with it two inches of the strictured urethra. metallic sutures were employed in bringing the remaining perineal tissues together over the retained catheter but primary union and a perfect result followed, which persisted at the time of the report five months later. Some of White's results were scarcely less remarkable, his patients being able to easily and comfortably pass sounds of 30, 31, or 32 calibre (French) upon themselves at the time of their discharge.

FORENSIC MEDICINE

UNDER THE CHARGE OF MARSHALL D. FWHLL, M.D. LL.D.
Dean of Kent College of Law

Certificates of Insanity —

A recent sensational case has attracted a great deal of attention in England and is the subject of editorial comment in the *Boston Medical and Surgical Journal* of November 21 1895. In brief the case is that of a young lady who for some time had been living an independent life, and who having made up her mind that women

should be emancipated, had openly declared her intention of disregarding social rules and living with a man below her in station. Such conduct was considered by her parents as evidence of insanity, and they wished to save the lady from her own act. The lady was forcibly seized by her relatives after having been seen, and certified as of unsound mind, by a leading physician, and on an urgency order she was taken to an asylum. She was seen by the Commissioners, who, according to one evening paper, expressed regret that they could only advise the lady but could not control her acts. They were convinced that her symptoms did not represent any definite mental disease, and that therefore they must order her discharge. No complaints of any kind are made against the asylum. The point remains for consideration, whether the physician was justified in signing a certificate of lunacy under the circumstances.

In commenting upon the case the *British Medical Journal* says editorially

It is possible that the conduct of Miss Lanchester appears to be highly unreasonable, but everything depends upon the way in which a change in character has developed. No one will deny that the disregard of moral and social laws is among the earlier symptoms of insanity, therefore, if a person who has always led a strictly conventional life suddenly gives rein to his feelings, we are prepared to watch for other symptoms of loss of control. If, on the other hand, the change in character and in acts follows a slow course of development which bears a direct relationship to the surroundings, it cannot be considered or treated as disease.

It would be a reversion to the long past to treat individual disregard of social conventions as criminal or lunatic. Dr Blandford, who gave the first certificate, is an alienist physician of long experience, eminence, and high character. He studied at Oxford and graduated M.A. and M.D. in 1854, when this distinction was rarer than it is now. He is lecturer on psychological medicine at St George's, the author of the article "Insanity" in Quain's Dictionary of Medicine, and has filled more than one high office in his department of medicine. All who know Dr Blandford are certain that he has been influenced solely by conscience and conviction as to the act he performed in signing an urgency order. We feel very strongly, however, that the urgency order is a very powerful weapon which must not be used recklessly, or it may be distrusted by the public. It is a most valuable means for rapidly placing very violent patients under control, but it is not intended for the speedy removal of persons who may have followed a course of conduct offensive to the opinions of their relatives.

With the statement that individual disregard of social conventions should not be regarded as evidence of lunacy we must certainly agree. Moreover, such a disregard of social conventions as this young woman expressed to her father and brothers her intention of indulging in, namely, cohabiting with a man whom she

refuses to marry, would not be regarded in England as illicit or criminal •

In committing her under the Lunacy Act, Dr Blandford states that he was partially actuated by the fact that there was insanity in her family. Other considerations which influenced him were the following

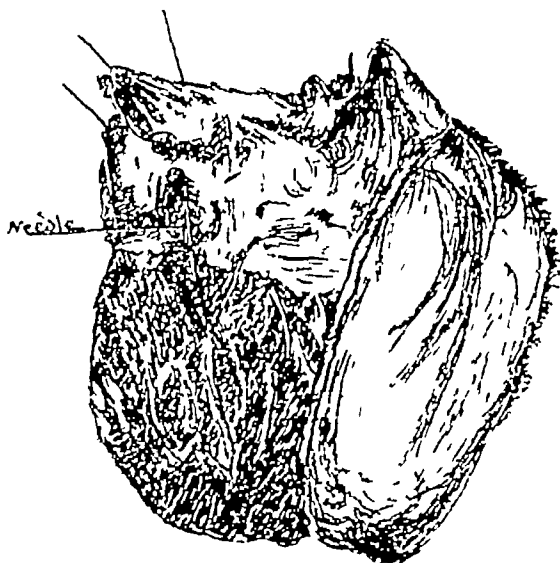
She had always been eccentric and had lately taken up with Socialists of the most advanced order. She seemed quite unable to see that the step she was about to take meant utter ruin. If she had said that she contemplated suicide, a certificate could have been signed without question. I considered I was equally justified in signing one when she expressed her determination to commit this social suicide. She had a monomania on the subject of marriage and I believed that her brain had been turned by Socialist meetings and writings and that she was quite unfit to take care of herself.

[We cannot but think Dr Blandford showed poor judgment in this case when he certified a person presenting no more evidence of mental disease than was present in this case. The more conservative view is expressed by the Commissioners and in the editorial of the *British Medical Journal*, pointing out that change of conduct as a sign of mental disease must be judged by all the circumstances. This brings the rule in harmony with that applied to delusional insanity, which inquires whether the patient's ideas are out of harmony with his previous modes of thought, environment, and education. We would also distinctly take exception to Dr Blandford's view that 'if she had said that she contemplated suicide a certificate could have been signed without question.' This, like any other act, is not an evidence of mental disease, but is to be judged in its relation to all other factors in the case. It is true that custom and humanity would lead one to take the view that a person with a marked suicidal tendency was of unsound mind, and any judicial error should be on the side of safety, but this does not alter the logical requirements.]

Needle In the Heart —

J. M. Foster reports (*Canadian Practitioner*, February, 1896) the case of an intensely suicidal melancholic, an inmate of Rockwood Hospital for seven years. She made repeated and desperate efforts at suicide, on one occasion thrusting a knitting needle to a depth of three inches into the chest, in the fourth intercostal space to the left of the sternum. She finally died of phthisis and a needle was found imbedded in the wall of the left ventricle close to the anterior interventricular groove. The needle pointed upwards, leav-

ing the left ventricular wall just anterior to the aortic valve, and penetrated the wall of the left auricle at the margin of the appendix. The point touched the opposite wall of the auricle, where a little papilla of vegetation was set up thereby, this papilla was a quarter



of an inch long and at its base about three-sixteenths of an inch in diameter. It is shown in the photograph just to the left of the point of the needle. In the ventricle the needle penetrated the heart muscle immediately behind the coronary artery, on its way to the anterior interventricular groove, three-quarters of an inch from its origin. The needle was firmly imbedded in the tissue, so that it could not be pulled out without using considerable force.

The needle was $1\frac{5}{8}$ inches long, and distributed thus: five-eighths in the ventricular wall, three-eighths in the auricular wall, and five-eighths free in the cavity of the left auricle. It was black in color, and its surface quite smooth.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints or, if they so elect, an honorarium will be paid for original communications.

Books for review, exchanges and all matters relating to the editorial management, should be addressed to Harold N. Moyer, M.D., 103 State St., Chicago, Ill.

All communications relating to the business management of *MEDICINE* should be addressed to Geo. S. Davis, Publisher, Detroit, Mich.

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ORIGINAL ARTICLES

ROENTGEN-RAY DIAGNOSIS

BY O. L. SCHMIDT M.D.

Professor of Medicine Chicago Polyclinic Physician to Alexian Brothers Hospital of Chicago, etc

The value of the Roentgen ray process of skiagraphy with the present apparatus has been gradually freed from the chimerical expectations which were at once claimed for it. Concretions in the urinary and biliary bladders, deformities of the pelvis, etc., are not yet accessible to the Roentgen rays in the living human body, but in consideration of the perfection of the other arts, there can be no question that suitable apparatus will be invented in the course of time for the inspection of these and other conditions of the trunk. For the present we must be satisfied with results on the extremities. Some of these are merely corroborative of other methods of diagnosis, but others yield absolute information not obtainable in any other way.

I will dispense with an accurate description of the apparatus we employ, as every journal of scientific pretensions has thoroughly explained the method. We use a mechanical revolving interrupter, constructed for us by Electrician W. C. Fuchs, a large Ruhmkorff coil, and storage cells, which give a current of 12 volts and about 5 ampères. The form of Crookes tube is the one devised by Professor Stine, of the Armour Institute. We find that this gives us the best results in taking large pictures and that it will stand long usage. For smaller objects we employ a tube which was made according to the directions of Dr. F. C. Harnisch by Wm. Bohm, the expert glassblower. This latter tube is very convenient, as it is rather slender and has a convex surface only two inches in diameter,

on which the bombardment of the cathode rays occurs. This allows us to dispense with the large lead diaphragm and thus the tube may be applied to some parts of the body more easily. The Crookes tube is usually placed from eight to sixteen inches from the object to be skiagraphed, while the object is placed as close to the sensitized plate as possible.

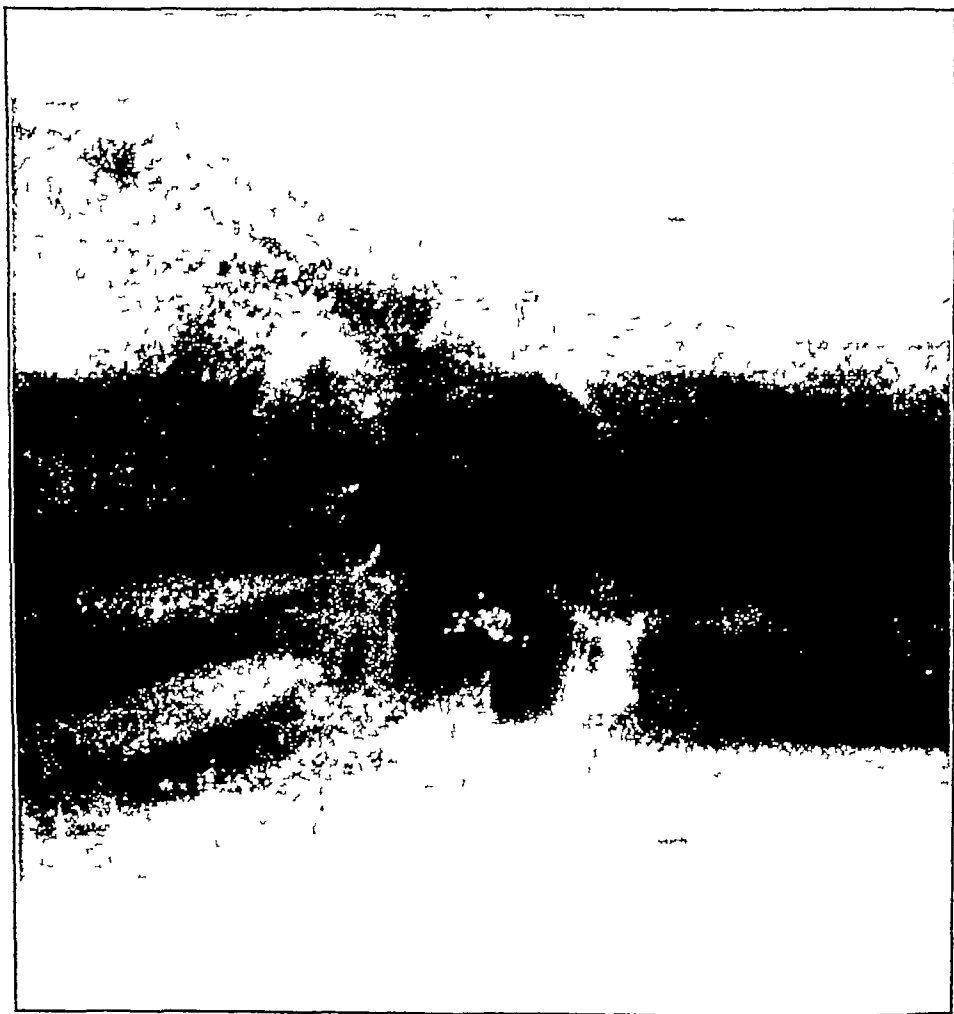


PLATE I

Plate 1—A normal wrist-joint of a gentleman of 30 years, with a needle placed beneath the head of the radius. This skiagraph shows exceptionally fine delineations. The exposure was one hour. Unfortunately, the negative was slightly harmed in being developed, which resulted in the markings which are visible

in the metacarpus. These are readily distinguished as artificial. To avoid any reduction in size, the picture is made to show only the central part of the entire impression, leaving out a part of the metacarpus and phalanges on the one end and a part of the radius and ulna on the other.

I wish to call attention to the sesamoid bone of the thumb, the skin fold between the thumb and the index finger, the medullary canals, the carpus, the lower extremities of the radius and ulna. Under the radius we see the needle, and observe that this has a greater resistance than the bone so that even if it were in the bone itself it would throw a perceptible shadow. The carpal bones are beautifully shown, separated almost as if the bones were not yet fully ossified. The difficulty in skiagraphing joints is that the bones overlap each other and thus give one large confusing shadow.

The trapezium shows its articulation with the first and second metacarpal bones. At the junction of the trapezium with the scaphoid their overlapping is visible by a darker shadow. The scaphoid, semilunar and cuneiform pisiform shadows are excellent. A comparison with the disarticulated bones or with the corresponding plate of Gray's Anatomy shows many minutiae which will repay their study in demonstrating the value of skiagraphy in showing the natural forms and positions of the bones. Another distinct feature of the picture is the skin line which is so clearly shown on the inner side of the forearm and hand.

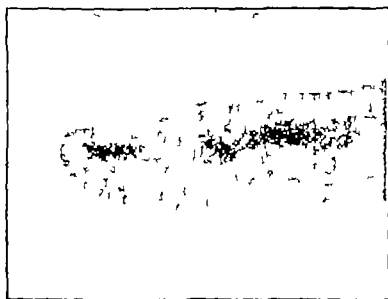


PLATE 2

Plate 2 —A piece of graphite imbedded in the left index finger underneath the skin, opposite the last phalangeal joint. It was broken off in the finger twelve years ago and can be felt as a small

hard nodule, it is about one-fourth of an inch in length. An antero-posterior shadow was first taken, but, as the density of the bone was greater than that of the graphite, failed to reveal the foreign body. A lateral exposure gave the accompanying picture.



PLATE 3

Plate 3 —Exostosis on the last phalanx. We are indebted for this case to Dr. G. B. Malone. For some years there has been a hard, immovable mass on the palmar surface of the last phalanx of the left thumb. It is not now increasing in size. The dark spot on the skiagraph is not as large as one would have expected it, this is probably due to periosteum forming a large part of the mass. This picture should be compared with the preceding.

Plate 4 —Caries of the fourth metacarpal bone. For two years there has been a sinus with much surrounding induration on the outer part of the dorsal surface of the right hand. It was incised twice, but failed to heal. The skiagraph shows a sharp notch on the outer side of the fourth metacarpal bone, just above the head, this is much more distinct on the negative than in the print. This notch is under the opening of the sinus, and, as the history and appearance of the hand speak positively for caries, it indicates to me the seat of the bone lesion. The last phalanx of the ring finger shows a dislocation which undoubtedly resulted from stubbing the

finger in playing base ball We have seen this very frequently in skiagraphs, and almost invariably the individuals had been ball players For this point a comparison with the following skiagraph should be made



PLATE 4

Plate 5 —Mrs I—— was referred by Dr J W Oswald April 4 The day previous she had broken off a needle in the palm of the right hand, she sought a surgeon, who made an incision but failed to find the part broken off On the following day she applied at the Alexian Hospital, but as Dr Oswald found no signs of the

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PLATE 5

needle by examination he kindly referred the case to us. The skiagraph shows the needle opposite the upper end of the fourth metacarpal bone and in the fourth interosseous space. On the following day Dr F. Henrotin, at the Alexian Hospital, in the presence of gentlemen from the Polyclinic, demonstrated that the needle could

not be felt and that the only clue, with the exception of the skiagraph, was the incision made on the first day. With the aid of the Schleich method, and guided by the skiagraph, the operator found the needle in the first incision. In this case, as well as in some others which I hope to show in a future number of *MEDICINE*, the importance of the method is clearly shown in detecting foreign bodies that cannot be located by other means.

The pictures that we have considered are perfect specimens of this kind of work, still the negatives from which the photographs and prints were made are so much clearer and more instructive in the finer details that after their inspection the prints appear as very crude. Consequently, for all close observations the negatives ought to be consulted.

The fluorescent screen is very serviceable in testing the Crookes tubes for their Roentgen ray power, and for obtaining the general outlines of an object, but at present neither the barium platino-cyanide nor the calcium tungstate gives sufficiently clear pictures to replace the sensitive-plate process even in examining objects of great transparency. Our experience with the platino-cyanide has been more satisfactory than with the tungstate.

Our plates show that skiagraphy is of great value in the detection of foreign bodies of certain kinds in the diagnosis of bone diseases associated with either enlargement or defects in their natural form, and in fractures or dislocations. But at present only the extremities are open to this research, and of these the more distal parts give the most satisfactory results. The orthopedist ought occasionally to obtain valuable information from skiagraphy. Skiagraphs are already admitted as evidence in medico-legal cases.

Dr F. C. Harnisch and I, who are associated in this work, desire to extend an invitation to the readers of *MEDICINE* to inspect the negatives and the apparatus at our laboratory.

PRIMARY CARCINOMA OF THE URETER ¹

BY DR LUDVIG HEKTOEN CHICAGO

While it is not uncommon for the ureter to become invaded by carcinoma extending from the uterus, the rectum, or the urinary bladder, primary carcinoma of the ureter is very unusual. Recent systematic works on surgery and on tumors contain no mention of carcinoma of the ureter. Indeed, the whole list of primary tumors of the ureter described in the literature is very short.

Lebert² describes a polypoid fibroma, Thornton³ a papillary fibroma upon which a calculus was situated, Neelsen⁴ a typical papilloma of the upper part of one branch of a partially reduplicated ureter, causing a large hydronephrosis of the corresponding half of the kidney. Chiari⁵ records a so-called cholesteatoma of the ureter, and Rebert⁶ a myo-sarcoma. Orth⁷ credits Letten⁸ and Hartman⁹ with having observed each a carcinoma of the ureter.

Wissing and Blix¹⁰ describe a case of primary carcinoma of the right ureter, with secondary tumors in the mesenteric glands, the rectum, and the liver, with hydronephrosis, in a 41-year-old woman whose urine did not contain anything abnormal. There was a hydronephrosis containing 1000 grammes of fluid. The upper 12 centimeters of the ureter was spirally twisted, hard and thick, converted into a solid string the size of the little finger. On the cut surface there was no lumen, but in place of it a loose, yellowish-gray, disintegrating neoplasm. The wall of the rectum was the seat of multiple submucous nodules due to extension from the metastases in the retroperitoneal glands. The structure was that of a medullary carcinoma.

Hedenius¹¹ describes hazel- and walnut-sized carcinomatous nodules in the mucous membrane of the pelvis and the ureter, which were pronounced by him to be a primary carcinoma.

The following case concerns a 50-year-old married woman, who had been in fair health until eight months before death, at which

¹ Read before the Chicago Pathological Society, April 1896.

² *Anat. und Path.*, 11, p. 372.

³ Transactions of the London Pathological Society, vol. xxxvi, p. 269.

⁴ *Ziegler's Beiträge* iii, p. 279.

⁵ *Prag. Med. Wochenschr.*, 1886.

⁶ *Virchow's Archiv*, 106, p. 282.

⁷ *Lehrbuch der Path. Anat.*, 11, 1889.

⁸ *Char. Annalen* iv, p. 188.

⁹ *Soc. Anat. de Paris*, 1862.

¹⁰ *Hygien* 1878, p. 468.

¹¹ *Uppsala Läkarsällnings Förel.* bd 13, heft 4. Quoted by Wissing and Blix *loc. cit.*

time she became aware of some pain about the right hip which was regarded as rheumatic. The pain gradually increased, and soon the right lower extremity became swollen and a swelling appeared in the right inguinal region. There was no history of any injury. Examination about one month before death showed marked emaciation, the heart and lungs were apparently normal. Filling the lower right quadrant of the abdomen was a soft mass of irregular outline, which seemed connected with the right ilium. The uterus was displaced to the left, as examination per vaginam revealed. The urine was normal, specific gravity 1.015. Death took place from exhaustion about eight months after the first painful symptoms appeared and after the patient had been bedridden for three months.

The clinical diagnosis was osteo-sarcoma of the pelvis.

Anatomical Diagnosis. Tumor of the pelvis involving the right ureter, hydronephrosis and atrophy of the right kidney, atrophy of the heart, pulmonary emphysema, chronic adhesive peritonitis, fibro myoma of the uterus.

The body was that of a senile woman, poorly nourished, rigor mortis present. The peritoneal cavity was empty, a retroperitoneal mass filled the right half of pelvis and presented on its pelvic aspect small, whitish, firm excrescences, cecum adherent to the tumor mass by means of firm fibrous bands. The pleural cavities were empty and free from adhesions. The pericardial cavity was empty, pericardial layers smooth. The heart weighed 210 grammes. Endocardium smooth, except for some whitish areas in anterior mitral valve. Heart's flesh brownish and of uniform, rather firm, consistence. Coronaries normal. Aorta quite smooth. Lungs very spongy and light, containing but a small amount of blood. Bronchial glands normal. The spleen weighed 110 grammes, capsule nodularly thickened. The liver brownish in color, weighed 1200 grammes. Pancreas and gastro-intestinal tract normal. The uterus contained a walnut sized submucous fibro myoma attached to the posterior wall of the fundus by a rather slender pedicle. Tubes and ovaries normal, ovaries small. Vagina normal. Adrenals normal. The left kidney weighed 140 grammes, capsule free, surface smooth, consistence firm, cortical markings not distinct. The right kidney was not present as such, in its place was a cystic cavity containing about 800 cubic centimeters of a slightly turbid grayish, thick fluid. The walls of this cavity, whose inner surface was smooth, were quite thin and directly continuous with the post peritoneal tumor mass about to be described.

The tumor appeared to spring from the inner surface of the right ilium, it formed an irregular mass about the size of a child's head. On the cut surface it was whitish-gray in color. Its consistence was soft and it contained numerous small, irregularly shaped cavities, filled with creamy, semi-solid material. The ureter could not be identified at the upper limit of the tumor. A probe passed upward from the opening in the bladder, became arrested about 2.5 centimeters above. Careful dissection showed the ureter to be entirely lost in the tumor tissue. Upon removal of the tumor it was found that the inner surface of the ilium was eroded. The retroperitoneal glands were not enlarged.

Microscopical examination showed the structure of the tumor to be that of a typical medullary carcinoma. Throughout the section were large and small islands and districts of epithelial cells

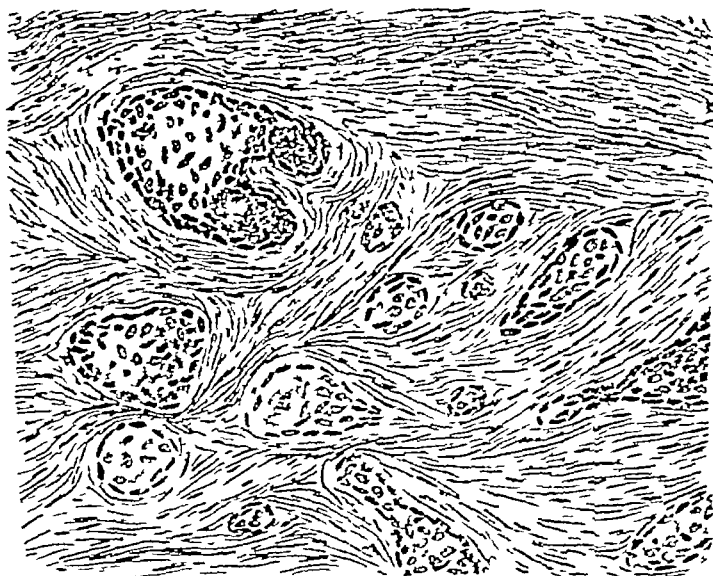


FIG 1



FIG 2

imbedded in a connective-tissue stroma composed of loosely arranged, fibrillated connective tissue with but very few vessels (Fig 1). Only the smaller masses of epithelial cells were free from degenerative changes. The larger carcinomatous districts showed a granular disintegration in their centres, which might be mistaken in some instances for epithelial pearls, in many places the degenerative necrosis was very extensive and resulted in the formation of small cavities surrounded by a narrow zone of epithelial cells. The epithelial cells in the smaller, recent nests showed innumerable

poorly preserved (twenty four hours post mortem) karyomitotic figures. The nuclei were rich in chromatin. The general characters of the cells in their recent districts of proliferation were those of the transitional epithelium of the ureter and the bladder (Fig 2), the cells varying greatly in their forms being oval, spindle- and club shaped, and their nuclei polymorphous and often lobulated.

The reasons for regarding this carcinoma as originating in the ureter are the following

(1) The location—there being no other archiblastic structure in the vicinity than the ureteral lining—and the direct involvement of the ureter in the tumor the larger part of the canal being entirely lost in the tumor mass, the hydronephrosis and complete atrophy of the kidney being due to complete destruction and closure of the lumen of the ureter

(2) The marked similarity of the epithelial cells of the tumor to the cells lining the ureter the transitional character of the latter being well preserved in the tumor

(3) The absence of carcinoma elsewhere, and the voluminous size of the primary retroperitoneal growth

It is important to note that in carcinoma as well as other tumors of the ureter, occlusion of the lumen of the latter and consecutive *hydronephrosis with atrophy of the kidney seem to occur* quite regularly, as far as can be concluded from the few cases now at hand

The thorough and systematic study of early carcinoma of the ureter—the earlier the better—would throw needed light upon the more exact origin and development of this rare but interesting form of malignant epithelial tumor

RUPTURE OF THE RECTUM BY PENETRATING BODIES—A STUDY OF FORTY-SEVEN CASES COLLECTED FROM THE LITERATURE AND ELEVEN ORIGINAL CASES ¹

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The subject of rupture of the rectum by impalement is one which, systematically treated, has not hitherto engaged the attention of any writer, so far as I can ascertain. When a case of the kind came under my observation last summer it seemed to be one of extreme rarity, but inquiry among laymen and physicians developed the fact that such accidents are not rare, but only uncommon. And an extensive study of the literature, scattered widely in point of time and place of publication, serves to place at our disposal forty-seven cases of this nature, while in answer to a request published in the *Medical News*, nine cases not yet recorded have been sent to me to be added to my own case and that of Dr Vinnedge which I published in October, 1895 ²

It was in the hope that a study of these cases would throw light on the questions of morbid anatomy, symptomatology, prognosis, and especially therapeutics, that this essay was undertaken.

The subject of traumas of the rectum embraces, in addition to the topic I have chosen, the injuries sustained in sodomy, the perforations inflicted in the administration of enemata, and the lacerations superinduced by the passage of foreign bodies coming from above, by those introduced for a variety of purposes from below, and by the penetration of missiles. These subjects, which will be touched upon only as they have a bearing upon our immediate topic in hand, were necessarily excluded, partly for the lack of space, but chiefly because it seemed that the subject of injuries by the introduction of long and relatively narrow foreign bodies afforded a field of inquiry which possessed a rational unity that was not shared by the other subjects mentioned.

The immediate presentation of my own case will, I hope, lend the interest of the concrete to what will be recounted later.

Case 1—Leo M—, aged 13 years, in the enjoyment of perfect health, had allowed a common four-tined pitchfork to slip from the top of a load of hay to the ground, tines downward. The fork, instead of falling over, stood upright, leaning against the hay, with the tines sticking in the ground, and as the boy slid downward from the load the handle of the fork perforated the clothing and entered the rectum. The boy fell over on the ground, and the

¹ Read before the Society of Cook County Hospital Ex Internes, February, 1896

² *Medical News*, Oct. 12, 1895

handle became disengaged from the bowel. The boy made his way to the farmhouse near by and lay down upon a bed. The pain at this time was astonishingly slight, and the boy, whose parents were absent, did not send for a physician until the next day. Dr. Frederick Doepp of Homewood Ill., then saw the patient, and at once telephoned for me, but on account of the distance I did not see the patient until several hours afterward when twenty hours had elapsed since the injury.

The instrument of penetration was first examined and found to be a common cylindrical wooden fork handle $3\frac{1}{4}$ inches in circumference, upon which blood and fecal matter were smeared for a distance of $7\frac{1}{4}$ inches from its rounded extremity.

The patient's pulse was 110 and his temperature 101° , but the character of the pulse beats was ominous, the vessel being hard and small. There was some tenderness over the hypogastric region. As I believed peritonitis had begun, celiotomy was performed. In Trendelenburg's posture the abdomen was opened and sero-purulent fluid with a fecal odor at once escaped. This was wiped out carefully, and the rent in the bowel sought for. The peritoneum was lacerated between the rectum and the bladder, in a transverse direction, to such an extent that the tips of four fingers could easily be introduced. The wound in the rectum was located in a line between the anus and the peritoneal laceration, i. e. at a point about two inches above the anus. The wound in the peritoneum was closed with several interrupted sutures, and the inflamed intestines were gently cleansed by pressure with sterilized gauze, a great number of flakes of plastic lymph being removed. A large strip of iodoform gauze was carried up by an assistant through the rectal wound into the space between the bladder and the rectum beneath the sutured peritoneum. Another strip of gauze enclosing a glass drainage tube was carried down to the recto-vesical space from the lower angle of the abdominal wound.

During the next two days the peritonitis spread rapidly. On the third the patient's condition improved somewhat, but on the fourth day the inflammation proved fatal.

In those cases in which, as in the case just related, the entrance of the foreign body was wholly accidental, the mechanism of the accident seems evident. The thighs act as deflecting surfaces to direct the foreign body, as it were, toward the interischial space. The ischia, the pubes, and the sacrum and coccyx then tend to carry it toward the middle of the pelvic outlet. And no doubt the soft tissues aid in directing the point of the object toward the rectal tube. In several of the cases in which impalement occurred the foreign body entered the pelvis through the skin near the anus, penetrating the rectum only after passing through a certain amount of pelvic connective tissue. Dr. Vinnedge reports to me such a case, as follows:

*Case 2*¹—While engaged shaking out sheaves of wheat and pushing them into a moving threshing machine, near Lafayette a man about 30 years of age, strong and well, lost his balance and fell backward off the feeding table on

¹ *Medical News* Oct. 17, 1895.

which he stood, striking on a pitchfork-handle, which penetrated his rectum for a distance apparently between six and eight inches. The pitchfork-handle had been cut or sawed off so that it was only about one-third the usual length of a three-tined fork handle, and was standing in a vertical position when the man fell on it, the tines having been thrust into the ground. The blunt handle entered the injured man's person one inch in advance and one inch to the right of the anus, external to the sphincters, and passed into the rectum *low down*, apparently following its course upward to the extent stated, if not a little further. The injured man fell over with the fork in his person, and his associates who pulled it out of his body insisted that it was buried ten inches, and in proof of this they showed the fork-handle, $1\frac{1}{2}$ inches thick, which was bloody that distance from its extremity.

When first seen by Dr Vinnedge the injured man was lying on a sofa, under a shade tree in the yard of the farmhouse, apparently suffering only a moderate amount of pain. As to treatment, he was simply placed in the recumbent position, and advised to remain so until further notice. During the night his companions placed him in an improvised ambulance and removed him to a point seven miles distant. On the following day Dr Vinnedge, in company with Dr W. C. C. Brown, of Lafayette, found his pulse and temperature each 100, with but little pain. On the following day his condition was unchanged. From this time forward the man made a good recovery, leaving his bed at the end of a week. He defecated for the first time five days after the reception of the injury. There was never any suppuration or sloughing, and three weeks after his fall, when for the first time he presented himself for inspection, he said that he felt as well as he ever did and that he was going to return to his work.

Furthermore, the antero-posterior (or sacral) curve of the rectum is cut very obliquely by the plane of the pelvic outlet, greatly augmenting the chances of a foreign body entering the rectum if it penetrate the pelvic cavity at all.

The lateral curves of the rectum are thus described by Fillaux¹ "From the left sacro-iliac symphysis the rectum at first passes a little to the right and crosses the median line, it returns to the left and then reaches the median line, where it terminates."

These lateral curves tend to facilitate the escape of the end of the foreign body by rupture through the rectal wall into the peritoneal cavity.

But this perforation of the rectal wall by the foreign body acting from within is especially likely to occur, as was so accurately observed in my case at the laparotomy, at a point from six to nine centimeters above the anus.

Achilles Nordmann,² who has written an instructive paper on the lesions of the rectum due to clysters, refers to Henle's description of the curves of the rectum. He says "The junction of the

¹ *Traité d'Anatomie Topographique*

² *Ueber Clysmatische Laesionen des Mastdarmes* Basel, 1887

sacral and perineal curves produces a fold opposite the tip of the coccyx. This fold is more pronounced in men than in women. It is six to nine centimeters above the anal opening, upon the anterior and right wall of the rectum, and is formed by a sickle shaped duplicature of mucous membrane which, according to Hyrtl, often contains muscle fibres, and hence is called by him *sphincter antertus*. Constant occurrence of this fold is contested by Henle and other anatomists."

The name given to this fold by other writers is *plica transversalis*. Esmarch and Leube lay especial stress upon it as one of the chief factors in perforation of the rectum in the administration of enemata. The warning is given by these writers to administer clysters according to certain rules, the observance of which will enable the attendant to avoid this fold. Nordmann is inclined to minimize the importance of this anatomical peculiarity—a fact difficult to understand when we note that in several of his cases the injury was present at the site described.

Drs Richter and Tice internes in the Cook County Hospital, very generously undertook to make a series of experiments for me on the subject of the anatomy of these injuries. The method which they kindly adopted at my suggestion was to forcibly introduce into the rectums of cadavers a long rounded broom handle, and after opening the abdomen to note the position of the instrument and the nature of the injuries inflicted. Their results were furnished me in the following notes.

Experiment 1—Female cadaver age 20 dead six hours. Typhoid fever. The blow was not directed in the axis of the pelvic inlet and struck the promontory of the sacrum. There was no perceptible damage done.

Experiment 2—Male aged 40 dead twenty four hours. The bladder and rectum were empty. The peritoneum was slit between the bladder and rectum from side to side, the peritoneum seeming to be raised. The vesiculæ seminales were laid bare. The anterior rectal wall was perforated low down.

Experiment 3—Male age 50 dead four days. Tetanus. Bladder empty. A plug of cotton in the rectum interfered with the first blow. The anterior rectal wall was perforated low down and the peritoneum perforated between the bladder and rectum. There was a slit in the posterior wall of the bladder just below the trigone.

Experiment 4—Female aged 24 dead two days of peritonitis. Bladder empty, but the intestines were distended with fluid. The perforating body forced an opening in the anterior rectal wall passing between the rectum and vagina. A loop of ileum about 2½ feet from the ileo-cecal valve was ruptured.

Experiment 5—Male dead twenty four hours. Phthisis pulmonalis. Bladder was full the bowel empty. Perforation of the rectal wall occurred at a point low down and the peritoneum was slit between the bladder and rectum. The peritoneum was not raised.

Experiment 6—Male, aged 25, dead twenty-five hours. Bladder was distended. Perforation of the anterior rectal wall into the bladder at the trigone. The peritoneum was not opened. Urine escaped from the anus.

Experiment 7—Male, age 50, dead two days. Bladder half-filled. Perforation between the bladder and rectum left the bladder intact.

The morbid anatomy of impalement wounds of the rectum is strongly influenced by the direction in which the object is introduced. Drs Richter and Tice found in their experiments that unless the wooden rod which they used were directed nearly toward the mid-point of the pelvic outlet the promontory of the sacrum interfered with the passing of the penetrating body into the abdomen.

The size, shape and material of the penetrating object are important factors in the production of the various lesions observed. Such objects as tool-handles of an approximately cylindrical shape have been the instrument of injury in most of the cases I have collected. Although these objects are usually rounded and blunt at the end, they seem to perforate the tissues with considerable ease, the course they pursue is usually that resulting from the resistance offered by the ischia, the skin, and the pelvic and perineal fasciæ, as already noted. If the point of entrance is at the side of the anus, the skin and the deeper tissues are perforated in a comparatively clean manner, the lateral lacerations not being at all extensive as a rule. This is illustrated by the case of which a brief report was sent by Dr J S Gillespie, of Philadelphia.

Case 3—A negro man, about 30 years of age, having finished storing some hay in a barn loft, let his fork slide to the floor below, where it stuck straight up. He then jumped down from the hay, impaling himself upon the handle. The instrument entered his body about one inch to the right of the anus and passed into the rectum low down, producing a condition like fistula in ano, with the passage of feces. The patient died eight days after the accident, of peritonitis. He did not complain of pain at any time.

If, however, the body come in contact with the foreign body at an oblique angle, the amount of laceration may be increased. This is well shown in the next case, reported to me by Dr Robert B Smith, of Tioga, Pennsylvania.

Case 4—Mrs J C—, aged 37, in sliding down from a mow of hay, was impaled upon the handle of a pitchfork of ordinary size. The handle entered by the side of the anus, passed through the recto-vaginal wall, and emerged at the vulva, severely lacerating the left labium majus. She extracted the handle without assistance, and walked to her home about a hundred yards distant. Treatment by irrigation and packing resulted in a complete recovery. She has been successfully confined since the accident.

There is no evidence that the peritoneum was injured in this case. An explanation of the mode of injury in this instance is not offered by the gentleman who sent the report. It seems to me the pelvis must have been fully flexed upon the trunk (with the thighs drawn up) in order to permit the handle first to enter the rectum at an angle very oblique to the skin and then to pass into the vagina and out at the vulva. The laceration was thus caused by a sort of plowing action of the implement handle.

These cylindrical implement handles, penetrating the body with such enormous force as to lacerate the tissues but slightly, tend to pass upward to an extent corresponding to these conditions, unless the object meets with the firm resistance of the bones at some point. In the case reported to me by Dr Lewis C. Haecker, of Hampton, Iowa, the penetrating body was felt in the right hypochondrium.

Case 5—H. E.—a farmer about 45 years of age slipped from a hay stack, striking on a hay fork which was leaning against the stack with the tines downward. The handle entered the rectum for a distance of eighteen inches, and its end *could be felt in the right hypochondriac region*. He fell forward with the handle still in the bowel. As the bystanders refused to remove the penetrating body, he did so himself. There was no external hemorrhage. The patient died about eighteen hours after the accident, probably from peritonitis.

A remarkable case illustrating the penetrating power of such bodies is that of Chattergee (see page 469), in which a stick one inch in diameter was driven into the bowel with criminal intent. It passed through the anterior wall of the bowel a few inches from the anus, tore through the mesentery and diaphragm, and passed into the anterior mediastinum a distance of 23 inches. A post mortem examination showed, in addition to these injuries, a quantity of fluid blood in the abdomen.

A still more remarkable instance of extensive injuries is that of P. P. Woodbury (see page 466), in which a healthy girl of 15 years fell a distance of eight feet upon a cart stake. The stake entered two inches from the anus and passed upward a distance of 27 inches, fracturing three ribs and emerging at the left breast. Strange to say, the girl recovered in six weeks!

We naturally expect and find a more extensive laceration when the impaling body is irregular in shape. Dr Edwin T. Powell sends me the details of such a case.

Case 6—Mrs M. S.—aged 45 years and in good health one very dark night walked off the veranda some four feet high coming down upon a seasoned white oak stick about one inch square and on which about one inch from the blunt end a shoulder of one fourth inch had been cut or sawed in and split

out, thus making the larger portion of the piece of wood $1\frac{1}{2}$ inches square. The stick was driven in the ground, standing about 16 or 18 inches from the edge of the porch. The shouldered end entered the woman's body about one inch in advance and to the left of the anus, and passed into the rectum about $2\frac{1}{2}$ or 3 inches up and followed its course up some $5\frac{1}{2}$ or 6 inches. The injured lady, with the help of her husband, pulled herself back on the porch and walked into the house to the bed. She suffered but little pain, and there was but slight bleeding. A slight rise of temperature followed and a diarrhea occurred, the feces coming away through the artificial opening. She recovered in a few weeks.

Sharpened objects produce, of course, much smaller openings than cylindrical bodies. Dr A. A. Hamilton, of Marion, Ind., read an account of such an injury before the Grant County Medical Society of Indiana, in January, 1895. He kindly sent me an abstract of his paper.

Case 7—A young man of 16 years, while hunting rabbits in a field where corn had been cut and the stumps of the stalks left standing, stumbled and fell backward, sitting down on a sharp cornstalk. The sharp point of the projecting stub entered the anus, and passed upward within the rectum for a distance of 3 or $3\frac{1}{2}$ inches, and then broke off near the ground. In entering the bowel it cut its way through the integuments on the left side, partially severing the external sphincter. The broken piece of stalk was removed by a companion, after which the boy passed a small quantity of bloody urine and was then removed to his home. The incision, commencing about an inch and a half beyond the anal opening and extending upward to and across the external sphincter, was brought together by sutures, and a dose of morphine was given. There was some pain and spasm of muscles. The boy passed no urine the next day by the natural channel, but two rather large bowel movements consisted almost entirely of urine. A soft rubber catheter was introduced and retained for several days, until so much irritation of the urethra was produced as to require removal of the tube and periodical catheterization instead. In this way only part of the urine escaped by the bowel. Some elevation of temperature occurred during the first three or four days. A fetid, purulent discharge then began from the bowel and continued for several days, gradually subsiding. On the eighth day the greater part of the urine again began to be passed by the natural channel, although a little of it was still passed by the bowel until the twelfth day. From that time on, the progress of the case toward recovery was rapid and complete.

When the foreign body accurately enters the anus, the degree of laceration or stretching of the sphincter depends much upon the size of the penetrating object. Dr William A. Gott, of Viroqua, Wisconsin, sent me an account of a case illustrating this point.

Case 8—E. G.—, a robust boy of 12 years, slid down a hay-stack about 20 feet high, resting his abdomen upon the hay so as to enable him to break the rapidity of his fall by clutching the hay. The handle of a fork leaning against the hay entered the anus. The boy fell to the ground, with the stick

still in the rectum His brother pulled out the fork handle and assisted him to the house near by The pain was very slight, being limited to a burning sensation at the anus and the boy assured his parents he was not much injured Four or five hours afterwards the patient began to have extreme pain in the abdomen at the umbilical region and a physician was then called It was found that the anus was so dilated that *two or three fingers could be introduced without trouble* Two fingers could be passed into the peritoneal cavity without causing much pain During this examination a quantity of bloody fecal matter escaped from the anus An operation was proposed but not accepted by the parents The patient died of general peritonitis.

Iron bars would seem to cause injuries of the same general character as wooden bars, variations in the effect depending of course upon conditions other than the material For example, Teichmann (see page 468) relates the case of a boy 18 years old who sat down upon a fire shovel which had a crook at the top of the handle The handle passed as high as the right hypochondrium Recovery occurred in fourteen days

A case is reported by André (see page 469) in which a soldier fell upon his rifle, the barrel entering the rectum After many vicissitudes the patient recovered

Another case, somewhat similar, is that of Burnier (see page 472) A workman descending from a furnace fell upon a flat bar one meter long, fifteen centimeters wide, and seven centimeters thick The autopsy showed two perforations the first, $1\frac{1}{2}$ by 1 cm, at a distance of six centimeters from the anus on the right side of the bowel, opened into the bladder, the second, 1.8 cm by 1 cm, at a distance of eight centimeters from the anus, opened into the recto-vesical pouch of the peritoneum There was a purulent peritonitis

In several cases the fact that the foreign body has been of a separable nature has resulted in the retention of portions of it in the pelvis or abdomen Dr E M Draper of Ilion, N Y has sent me a very brief account of such an instance

Case 9—A man was riding on a load of hay, which by accident overturned The man struck upon the branches of a dead tree A piece of wood passed into his body back of the anus, and entered the rectum two or three inches above, causing an extensive laceration of the rectum as well as the tissue back of it Dr Draper cut through the sphincter muscles as is done in treating fistula in ano and removed several pieces of bark and wood The result was most fortunate the patient recovering his health and full control of the sphincter

A case illustrating the separation of part of a foreign body and retention of a fragment in the abdomen was published in 1787 A girl dancing with her partner was lifted very high and fell over a

bystander who carried a cane This cane entered the bowel, and the head of it was retained there, as was shown at the autopsy

The variety of objects which have caused rupture of the rectum is great, as can be seen from what has already been said I need only mention as of collateral interest the cases in which foreign bodies of various kinds have been pushed into the rectum for different purposes and have caused rupture

Case 10—Dr D S Lamb, of Washington, has kindly communicated to me the case of a man who was in the habit of passing a glass bottle of about three inches diameter into the rectum to aid in the expulsion of urine through a strictured urethra One evening he could not find the bottle, and as he was in a fishing-boat he tried a belaying pin without effect He then took an egg-shaped stone $5\frac{1}{2}$ inches long and $3\frac{1}{4}$ inches thick, oiled it, and passed it into the bowel, relieving the retention of urine About twelve hours afterward he called a physician, who tried in vain to remove the stone The doctor tried to extract the stone with the bail of a bucket bent like a forceps, and in all probability lacerated the rectum Three days afterward the abdomen was swollen, tender, and very painful A surgeon passed his hand into the rectum, which was found very much dilated The palpating hand discovered a rent in the wall of the rectum six inches from the anus By passing the arm up to the elbow through the splincter the stone could be touched in the abdomen An abdominal incision of five inches exposed the stone, which was removed together with several ounces of bloody serum Recovery took place, but was so slow that a year elapsed before the man could go to work again

A cucumber introduced into the bowel caused rupture in one case

George R Fowler records the case of a man whose rectum was ruptured by a colpeurynter used to facilitate supra-pubic cystotomy, and refers to another case in the literature

An ox-horn in three instances caused laceration of the bowel In one case the outcome of the laceration was not stated In the other two recovery ensued

An extraordinary instance of injury to the bowel by penetrating objects is the case reported by Tardieu, who states that a man 31 years old entered a stable without his trousers A bull confined in the stable pursued the man and succeeded in introducing his penis into the man's rectum The man died eight hours after the injury

Antecedent inflammation of the rectum doubtless favored the passage of dilating instruments into the peritoneal cavity, in the instances in which this accident occurred

In one case the bougie perforated the rectal wall at a height of ten inches from the anus At this point, as the autopsy showed, a transverse band of adhesions had diverted the penetrating instrument

Many points in the morbid anatomy of these injuries have been already touched upon. A few remain unconsidered while others already mentioned need some further elucidation.

The point of entrance of the penetrating body may be the anus, the vagina, or the skin either behind, at either side, or in front of the anus. In one case the scrotum was perforated. And in still another a pointed stake entered the buttock before perforating the bowel.

Hemorrhage about the wound of entrance is, as a rule, slight, in spite of the great number of veins and arteries present in the affected region. This is doubtless to be accounted for by the bluntness of the penetrating object.

The intestines occasionally protrude from the wound of entrance, as occurred in the case reported by Dr James B Bacon. This most interesting case was remarkable from the fact that the intestine having been reduced to the peritoneal cavity, and a piece of gauze having been introduced to maintain reduction and to afford drainage the patient without other noteworthy treatment recovered completely.

The wound by which the penetrating body left the rectum was, when present, not often examined so that its distance from the anus was not often given. The distance when noted varied from one to ten inches. Its most common site seems to have been from two to four inches above the anus—corresponding, it seems to me, to the plica transversalis.

The structures involved in the injury aside from the skin and connective tissue, were numerous. The promontory of the sacrum which is likely to be struck when the direction of the penetrating body is favorable, will arrest the blow completely if the angle of impact is suitable, or will deflect it upwards in other instances to the abdominal cavity. In the case of Doser, published in 1812 an aged gardener fell from a tree and alighting on a stump, drove the sharp point into the bowel. A piece of wood broke off and remained so fast in the sacrum that it could only be removed with considerable difficulty.

In one instance the sacral plexus of nerves was injured.

Injury to the urethra can as a rule only be surmised from symptoms. The prostate seems in one case to have sustained some damage.

The bladder was perforated in a large number of cases. In most instances the injury involved the posterior wall of the viscus but in one or two the fundus seems to have been damaged. Usually

the opening in the bladder, if large at the moment of injury on account of distention, was diminished apparently in size by its contraction. In this way the wound-edges were brought into comparatively favorable position for healing, and recovery of vesical control was soon established. Usually only urine escaped with the feces, but in some instances fecal matter mixed with urine was discharged by the urethra. On the whole it may be said that the bladder injury, next to that of the peritoneum, was the most frequent, as it was certainly the most serious.

The ratio of cases in which the peritoneum was injured to those in which the serous membrane was not damaged appears large. It seems to me, however, that this is accounted for by the fact that the simple cases in which consequences were not severe did not seem to their medical attendants worthy of publication.

The damage done to the peritoneum was usually limited to the laceration at the site of penetration. But in one instance the covering of the sacral plexus of nerves was torn away, and in a number of other cases the membrane was probably injured by the to-and-fro motion of the impaling body.

Foreign matter from the rectum was, of course, carried upward into the peritoneal cavity in many cases. And, as has been mentioned, foreign bodies of considerable magnitude have been carried upward in several instances from without. Among such bodies pieces of bark, of clothing and of dirt may be mentioned.

From such injuries and the presence of foreign bodies, peritonitis has often developed. The peritonitis has most frequently been of the acute suppurative variety, destroying life in about thirty-six to forty-eight hours.

Within the abdominal cavity the larger blood-vessels are rarely injured, since the instruments of penetration are usually blunt.

The jejunum was injured in one case, although as a rule the small intestines have been pushed aside even in the cases in which the penetrating body has passed high up into the abdomen.

The mesentery also has usually escaped injury. We would not expect it to be often exposed to injury, on account of its distance and attachments.

The liver, although so remote from the point of entrance of the foreign body, is susceptible to injury, as is clearly manifest from the recorded case in which it sustained an extensive laceration.

Even the thoracic organs, in rare instances, suffered in the same way, the diaphragm having first been perforated. One case has been already referred to in which the anterior mediastinum was entered.

The nature of the accident of course renders the male sex most liable to be affected, and in point of fact almost all the patients have been men

The symptoms of the accident are fairly characteristic so far as the strictly local rectal and anal injury is concerned. The amount of shock when blood was not lost has usually been slight. And the absence of pain, often almost complete, has been frequently very remarkable. The patients often retained their strength on these accounts so as to reach a neighboring house, and in some cases the absence of pain misled the unfortunate and his friends into deferring the call for medical aid until the symptoms of peritonitis had already begun.

The symptoms referable to vesical injury were only present when the bladder itself had been perforated, a complication relatively frequent. Often the first intimation of vesical injury has been the passage of urine by the anus.

The majority of these injuries have been due entirely to accident. But in the case of Chattergee a stake was driven into the bowel with criminal intent. Sword wounds are recorded which belong to the class of wounds more or less intentional in character. Pure malice seems to have prompted two boys to thrust a stick into the rectum of a girl with a fatal result.

The course of events in the cases in which recovery has occurred has been, as a rule, that if the bladder were injured the urine would cease flowing from the rectum in about eight or ten days while the lacerations about the point of entrance healed. But a number of weeks have usually been required before complete function in all respects was restored.

Considering the fact that infection is almost inevitable, and that so many important structures are often involved, the proportion of recoveries to deaths seems to me to be large. It must be accounted for, in the cases in which the peritoneal cavity is opened, by the fact that the amount of infectious matter introduced is usually small, since the penetrating body, often round and smooth, is as it were usually wiped off in entering the abdomen.

That the patient may recover, even when the injury seems most grave, is attested by the case of Woodbury, already cited, in which a girl recovered in six weeks from an impalement injury in which the penetrating body, entering at the anus, passed through the abdomen, fractured three ribs, and made its appearance at the left breast.

That even prolapse of the small intestine through the rectal

wound is not of itself sufficient to cause a fatal infection, is proved by the case reported by Dr James B Bacon, already cited

Rupture of the rectum by penetrating bodies has, among the cases of my collection, a general mortality of twenty in fifty-eight cases, or almost 34·5 per cent, including the cases of injury to the peritoneum with those in which that membrane was unharmed. Separating the cases upon this criterion, we recognize at once the absolute unfairness of including all cases in one category, since all the deaths occurred in the cases in which the peritoneum was penetrated. This gives us thirty cases in which no injury was inflicted upon the peritoneum, with *no mortality*, while among twenty-eight cases in which the injury extended into the abdomen, twenty patients died, making a mortality rate of 71·4 per cent. Certainly early laparotomy in these cases can be expected to give us better results, although the fact that a large proportion of cases occur in remote districts will make such treatment difficult.

A case illustrating the possibility of recovery when a large quantity of foreign infectious material is left for a time in the peritoneal cavity is that of Borsuk, in which a fragment of wood broken off from the impaling body was not removed until the day after the accident.

The therapy adopted has usually belonged to the lowest grade of so-called expectant treatment. Symptoms have been usually relieved by simple remedies. The opium treatment, in anticipation of peritonitis, has been frequently practiced.

The management of the wound of entrance has usually been the chief care of the attendant. It has sometimes been closed by sutures, but doubtless even the common practice of superficially cleansing the wound and applying external dressings is more rational than the prevention of drainage by the use of stitches.

The fact that most of my collected cases date from the pre-antiseptic period accounts for the apparent vagaries in treatment.

The influence of modern principles of wound-treatment is seen in the methods adopted in the management of many of the cases occurring even in remote districts.

Thus, in several instances, wounds at the side of the anus, extending into the bowel, have been opened into the rectum and made to heal from the bottom as we would treat a fistula in ano. Whether this mode of treatment will always be required seems to me doubtful, since the diameter of the wound is usually sufficient to enable the surgeon to apply packing to its bottom quite easily, so that it would seem the sphincter muscle might in some cases be

spared The importance of capillary drainage about the rectum cannot be overestimated, and in the future such cases will no doubt be most carefully packed This treatment was applied very carefully in the case treated by Von Vámosy As no opening into the peritoneum was discovered, the rectum was cleansed by the aid of the speculum and an iodoform gauze packing carefully introduced In the case of the soldier who sustained a rupture by the passage of a rifle barrel into the rectum, antiseptic washes and cold fomentations did not avail in the prevention of suppuration An abscess formed between the right ischium and the anus This was opened a quantity of blood-clots and pus washed out, and drainage tubes inserted Several weeks later another abscess had to be opened and drained Three months after the accident a fistula in ano still remained and had to be operated upon by laying open the tract into the rectum by the thermo-cautery The recovery of this patient occupied more than four months

The complications of rectal rupture have often received intelligent consideration The bladder injuries especially have been treated on the correct principle of drainage of the wounded viscus in a number of cases, and where death did not ensue from inflammation the organ has always recovered its function

The period which the reparative process demands is comparatively short in many instances The patients have often been able to walk in a week or ten days, while business has been resumed in many cases in two or three weeks

The patient of Borsuk, already mentioned, was operated upon by laparotomy He was a farmer who fell from a hay stack "one story" high and struck upon a pole, the sharp point entering through the buttock and passing into the bowel As the patient was brought to the hospital late on the day of the accident, a dose of morphine was given and operation postponed until the following day The patient was in great pain and his eyes were sunken At the operation it was found that the bladder and peritoneum were injured When the catheter was passed some foul smelling bloody urine was drawn On opening the abdomen, fecal matter was found in the cul-de sac of Douglas, and the abdomen contained a serous turbid fluid A fragment of the upper part of the stake, which had been broken off at the time of the accident was found sunk in the sigmoid flexure of the colon The various wounds were sewed up and a catheter left in the bladder Morphine, pilocarpine and other drugs were given as indicated, and the patient made a rapid recovery

A case of interest in this connection, although caused by distention with a colpeurynter, is reported by Dr George R Fowler. A man of 63, suffering from dysuria due to enlarged prostate, was to be operated upon by supra-pubic cystotomy. A Peterson's colpeurynter was introduced into the rectum, and eight ounces of water injected into it. The anterior wall of the rectum was ruptured almost to the sigmoid flexure, the laceration being about four inches in length, and the colpeurynter passed into the abdomen. Laparotomy was at once performed and the bag removed. But the operator was unable to close the wound in the rectum by Lembert sutures, the rectal tissues being soft and thin. An artificial anus was made by bringing the rectum into the abdominal incision. The patient died of shock.

Despite the fatal issue of my case, which was due to the great length of time the peritoneal membrane had been subjected to the action of the infectious matter, I believe that the treatment adopted was proper. It will be recalled that this consisted in laparotomy, cleansing the peritoneum as far as possible with sponges, suture of the peritoneal rupture in Trendelenburg's position, and drainage of the space between the rectum and peritoneum with gauze brought out through the dilated anus, together with efficient drainage of the Douglas cul-de-sac through the abdominal cavity. The frequency with which feces and other foreign material are carried high up into the peritoneum would seem to put out of question simple pelvic drainage of the peritoneum through the rectal wound or through a wound made for drainage through the perineum.

The accounts of the two cases next following were sent to me, the first by Dr H Hapeman of Minden, Nebraska, the second by Dr O B Wyant of Tipton, Iowa.

Case 11—J B—, farmer, jumped from a wagon and alighted upon the handle of a pitchfork, which entered the rectum. When examined twenty-four hours later by Dr Hapeman, there was no pain, but on passing the finger into the rectum it was found that there was an opening in the rectal wall admitting two fingers. The laceration extended upward in front of the rectum as far as the finger would reach. Although the bladder was lacerated, as shown by the escape of urine from the rectum for a number of days, the wound healed without untoward symptoms.

Case 12—Dr O B Wyant, of Tipton, Iowa, saw in August, 1894, a young man who had been impaled upon a pitchfork-handle. The instrument of penetration was $3\frac{1}{2}$ inches in circumference and had passed up the bowel a distance of $8\frac{1}{2}$ inches. The man hung suspended in the air until help came. He made an uninterrupted recovery. The exact nature of the injuries inflicted was not stated.

The following cases have been gleaned from the literature of the subject

- Dr P P Woodbury ¹ Girl 15 years old, healthy, fell eight feet on an erect stake of a cart. The stake was three inches round at the small end and five inches round at the large end. General collapse with slight hemorrhage. The stake entered at the anus, and left the rectum two inches above it, passing into the body 27 inches emerging at the left breast, three ribs were broken. The patient entirely recovered in six weeks.

A P Fuller ² A man, 35 years old was gored by an ox the horn entering at the side of the anus passed three inches up the bowel, making an opening the size of the forefinger. There were involuntary fecal discharges. The opening at the side of the anus was enlarged by operation until it communicated freely with the rectum. Patient recovered slowly.

Israel Hinckley ³ A man, 57 years of age slid down a hill on a board with a nail in it. The nail, which was a very large one penetrated near the anus and entered the rectum 1½ inches above the anus, making an opening the size of a finger. Recovery.

N Cheney ⁴ A man, 57 years of age had a diarrhea with prolapse of the rectum. A boy tried to remove the prolapsed part with a piece of wood. The rectum was lacerated through all its coats a wound was made two finger breadths wide. Recovery.

H B Sands ⁵ Man 45 years of age with a stricture of the rectum was treated by a physician by the introduction of a gutta percha bougie 10 inches long stiffened with a watch spring. The rectum was perforated, causing chills and much pain. The patient died three days after the injury. The autopsy showed perforation 10 inches above the anus, and peritonitis. There was an old adhesion just at this point causing an acute angle.

Forget ⁶ A strong boy of 17 fell from a height striking upon the handle of a trestle, which entered by the side of the anus. There was much shock with intense pain. The patient pulled out the wounding instrument. Operation for fistula was performed and the patient recovered in about one month.

Martin de Pedro ⁷ A boy 14 years old, was playing with a stick which he stuck in the ground and jumped over. Finally he missed his aim, the stick penetrating the rectum. Great pain a small rapid pulse some loss of blood great vomiting, and pain in the abdomen were the symptoms. Death occurred on the fifth day. Autopsy showed general peritonitis and an opening was found in the anterior wall of the rectum allowing the index finger to pass.

Bryon ⁸ A strong peasant woman 52 years old, sliding down from a hay loft struck against a fork handle three centimeters in diameter, which penetrated the rectum. There were great pain anxiety, vomiting and bloody discharges from the vagina and rectum. The instrument entered at the anus, and penetrated the recto-vaginal wall. Treatment consisted in tamponade. Patient recovered after several weeks.

¹ *New England Journal of Medicine and Surgery* 1825, vol xiv p 32.

² *Boston Medical and Surgical Journal* 1837 vol xvi, p 105.

³ *Ibid*

⁴ *Ibid* 1873, vol lxxxviii p 310.

⁵ *Transactions New York Pathological Society* 1844 vol ii p 160.

⁶ *Caz & Med* 1875, vol xlviii, p. 771.

⁷ *Siglo Med* Madrid 1864 vol xi p. 551.

⁸ *Rev. Mem de Med* Paris, 1869, 35 xxii.

Cuyllits ¹ A young man fell from a tree upon a sharp-pointed tree-trunk 2½ centimeters in diameter, irregular in shape. It penetrated the anus 12 to 13 centimeters. Great hemorrhage and syncope followed, the urine passing by the anus. There was a circular incision in the rectum at the sacro-vertebral angle. A catheter was left in the bladder for several days. Recovery.

Doser ² A farmer, 70 years old, fell from a tree 18 feet high. A fragment of wood penetrated the rectum near the bladder and sank into the sacrum. Very great pain followed. It was found that the rectum was torn all the way up from the anus. Under simple drainage, recovery occurred in a few days.

K. Taussig ³ A farm hand, 15 years old, fell upon a rake-handle, a piece of which 30 centimeters long and 8 centimeters wide broke off in the rectum. The hemorrhage was small. The peritoneum was perforated. Under rest, ice, and antiseptic washings, the patient recovered very rapidly.

Von Vámosy ⁴ A patient, 20 years old, jumped into a bathing-basin, and a long brush-handle penetrated the rectum through the anus. Pain over the entire hypogastrium was followed by slight meteorism. The handle passed out of the rectum nine centimeters above the anal orifice, rupturing the rectum lengthwise through an extent of five centimeters. The rectum was cleaned by the aid of a speculum. Iodoform gauze was used for tamponade. The peritoneum was not opened. Patient recovered somewhat slowly.

Teichmann ⁵ A boy, 18 years old, sat on a fire-shovel which had a crook at the top of the handle. This iron handle penetrated the anus 13 inches. From the loss of several pounds of blood the boy fainted. The handle entered through the side of the anus and reached as high as the right hypochondriac region. In spite of fever, small hard intermittent pulse, hard tympanitic abdomen, great pains, vomiting and hiccough, the patient recovered in fourteen days.

Deubel ⁶ A girl, 14 years old, was injured by two boys, who thrust a sharpened stake into the bowel by the anus. The patient died twelve hours after the injury. At the autopsy was found a wound three inches above the sphincter ani, on the posterior wall of the rectum, and a wound on the anterior wall of the rectum indicated the point of penetration of the peritoneum. The stake had to be pulled out by forceps.

Braumueller ⁷ A coachman jumped from his wagon and was impaled upon a stake, the top of which broke off, allowing the patient to fall. The iron top of the stake penetrated the gluteus muscle five to six lines above the anus, and perforated the rectum four inches higher. The patient was ordered to lie on the side, and under simple treatment recovered in six weeks.

Tronmueller ⁸ A male peasant, 50 years of age, was stabbed in the right gluteal region. Hemorrhage of over two liters occurred, followed by listlessness, coated tongue, anorexia, thirst, chills, general lassitude. The knife penetrated the rectum 14 centimeters above the anus. Recovery was complete in forty-three days.

G. F. Meckel ⁹ A herdsman fell in his sleep over a hurdle stick, which

¹ *J. des Sc. Méd. de Louvain*, 1880, vol. 1, p. 12-16.

² *Allg. Med. Ann. Altenb.*, 1812, vol. 21, p. 789.

³ *Wiener Med. Presse*, 1878, vol. 21, p. 238.

⁴ *Wiener Klin. Woch.*, 1889, vol. 11, p. 503.

⁵ *Mag. f. d. Ges. Heilk.*, Berlin, 1826, vol. 21, p. 551.

⁶ *Woch. f. d. Ges. Heilk.*, Berlin, 1837, p. 391.

⁷ *Ztschr. f. Hund. Aerzte u. Gebt.*, 1851, vol. 1, p. 213.

⁸ *Mem. Heilk.*, 1877, p. 197, vol. 22.

⁹ *N. Arch. f. Prakt. Arzneik. f. Aerzte*, 1789, vol. 1, p. 15.

entered his rectum and broke off. A quantity of blood escaped when the stake was withdrawn. Urine passed by the rectum. On the third day after the injury the urine stopped issuing from the rectum. Recovery followed.

Kurella and Schaum.¹ A young woman was dancing with her partner who raised her very high and dropped her. She fell over a man who was holding a cane. The cane entered the rectum 7½ inches. Fainting occurred, followed by pain in the loin and great hemorrhage by the rectum. Death resulted and an autopsy showed that the omentum was torn and the large intestine much inflamed. The head of the stick was found in the rectum, together with bloody extravasation and foul smelling excreta. The end of the stick had penetrated the abdominal cavity and feces were found in the abdomen.

Fischer.² Man between 21 and 25 years of age while climbing a cherry tree fell and was impaled on a sharp-pointed rod which entered the anus and broke off leaving a fragment behind. The fragment was an inch thick and an inch wide. There was pain in the anus and the entire left limb. On the third day there was loss of appetite, great pain in the left hypogastric and the gluteal regions and loss of sensation in the left limb. On the fourth day violent peritonitis. Death occurred and at the autopsy liquid exudate was found in the abdominal cavity. Symphysiotomy had to be performed to remove the fragment. The stick, which was over five inches long had penetrated the rectum and sunk into the first anterior foramen ovale of the sacrum.

Borsuk.³ A farmer fell from a hay rick upon a pole, the sharp point of which broke off and remained in the patient's body. The fragment was eight centimeters long and the thickness of a cane. There was great pain, the eyes were sunken, the abdomen tympanic. Retention of urine was relieved by the catheter on the following day, foul smelling bloody urine being drawn off. The stake had entered through the buttocks. Laparotomy was done. The wound was the size of nearly half a hand's-breadth, in both the anterior and posterior walls above the constrictor muscle. Bladder and peritoneum were injured. Fecal matter was found in Douglas cul-de-sac and the abdomen contained a serous turbid fluid. The wounds were sewed except for drainage and recovery was prompt.

André (C).⁴ A soldier, 22 years old fell upon his rifle which entered the anus and penetrated the rectum. The patient became very pale and anxious, with small pulse a tender and painful abdomen, great hemorrhages and vomiting. There was a tear on the posterior wall of the rectum six centimeters above the anus and retention of urine existed. The case recovered from the immediate effects of the injury but an anal fistula required a subsequent operation.

Manuel Campos.⁵ A mariner 30 years old, was injured by a cutting arm three centimeters long entering the right tuber ischii, his body being in a flexed position. Blood and feces passed through the wound and great pain over the pubes was associated with inability to urinate. The instrument entered from behind and passed through the anterior wall of the rectum, the peritoneum not being touched, but the bladder was punctured. Antiseptic

¹ *Wust u. Beobacht. u. d. Chirurg. Art-nerven*, 1787 vol. v. p. 54.

² *Allg. Med. Aerztl. Ztg.* 1865, vol. vi. p. 262.

³ *Med. Wars.-wund.* 1893, vol. xxi. p. 61.

⁴ *Arch. de Med. et de Pharm. Mil.* 1890, vol. xv. p. 365.

⁵ *Cron. Méd. Quir. de la Habana* 1891 vol. xviii. 863.

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⁶ *Woch. f. d. Ges. Heilk.* Berlin, 1837, p. 391.

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⁴ *Arch de M d et de Pharm Ml* 1890, vol. xv p. 364.

⁵ *Cron Med Quir de la Habana*, 1891 vol. xviii 863.

applications were made and a permanent catheter introduced into the bladder. The wound and rectum were picked. Patient recovered.

L. B. Townley ¹ A man, 35 years of age, slid down a hay-rack upon a shovel-handle $3\frac{3}{4}$ inches round, which entered the anus and penetrated the side of the rectum three inches from anus, making a round hole one inch in diameter. In a few days the swelling was opened, giving vent to fetid pus. Pain in the abdomen continued. Four days later had swelling in right groin and thigh, abdomen tympanitic, diarrhea and septicemia. Partial recovery, rectal opening became closed. No subsequent history.

T. Myles ² A young man, healthy, fell upon the broken leg of a chair, the accident being followed by pain, hemorrhage, and collapse. The stick entered the anus and made a jagged wound in the anterior wall, opening into the bladder and peritoneum. The bladder was kept empty to enable its wound to heal. The symptoms were vomiting and tympanites. Rapid recovery.

H. G. Chattergee ³ A man, 30 years old, had a stick one inch in diameter driven into the anus with criminal intent. It passed through the anterior wall of the rectum a few inches from the anus, tearing the mesentery and diaphragm, and passing into the anterior mediastinum 23 inches from the point of entrance. The post-mortem showed fluid in the abdomen.

T. C. Fisher ⁴ A man, 23 years of age, fell upon a broom-handle, which was smooth, round, and one inch in diameter. It entered the anus. The symptoms were shock, aching in hypogastrium, and hemorrhage. A round hole one inch in diameter was made in the rectal wall $1\frac{1}{2}$ inches above the anus. A laceration of the fundus of the bladder one inch long opened into the peritoneum. Death thirty-six hours after the injury. Autopsy revealed peritonitis and injuries as described.

Benjamin Poulton ⁵ A boy 18 years of age, healthy, fell upon a broom-handle, which entered the anus. Intense pain in the abdomen ensued. Three inches from anus an opening admitted the finger into the peritoneum. The jejunum was lacerated, also the liver. An opiate was administered. Bloody liquid in stools. Died about twenty hours after injury. Autopsy revealed general peritonitis and injuries as described.

F. Gundrum ⁶ A man 40 years of age, healthy, was gored by an ox, the horn entering near the anus. Collapse and pain followed. The opening was about $2\frac{1}{2}$ inches above anus, in rectum. Stimulants were administered, and about the fourth day the wound was laid open. Opiates also were given. Symptoms those of peritonitis. Recovery complete in six months.

Robert Parks ⁷ A man who had stricture of the rectum used a rectal bougie, which at the middle of the rectum penetrated the peritoneum. Dysuria and acute pubic pain followed. Patient was given sedatives and cathartics but died twenty-six hours after injury. Autopsy showed feces in the peritoneum, and peritonitis.

William Arnott ⁸ A man, 22 years of age, was impaled on a spike, which

¹ *Australasian Medical Gazette* 1891, vol. xi, p. 395

² *Medical Press and Circular*, 1893, vol. ciii, 576

³ *Indian Medical Gazette* 1891, vol. xxv, p. 241

⁴ *Australasian Medical Gazette* 1888-9, vol. viii, p. 12

⁵ *Australian Medical Journal* 1885, vol. vii, p. 436

⁶ *Detroit Lancet* 1879-80, vol. iii, p. 148

⁷ *Lancet*, 1833-4, vol. i, p. 859

⁸ *Ibid.*, 1840-1, vol. ii, p. 866

entered at the side of the anus, opening into the rectum near the anus. Symptoms of dysuria developed. He was treated by fomentations to the wound, afterward the wound was laid open. Sloughing occurred, and a perineal abscess was opened. Recovery followed with some incontinence of feces.

T O Blick ¹ A man 36 years of age sliding down a hay rick, alighted on a hayfork handle $3\frac{1}{2}$ inches in circumference which entered near the anus, penetrating six inches and opening three inches above the anus into the rectum. Collapse. Stimulants, poultice, hyosciamus, and opiates. Perineal abscesses were opened and the patient recovered.

J B Neal ² A woman 29 years of age was injured by having a cucumber thrust into the rectum. The peritoneum was lacerated, and a loop of intestine protruded from the anus. The opening through the bowel was $3\frac{1}{2}$ inches above the anus and one inch long. Greenish vomiting occurred after the injury together with much fever and pain. Death did not occur until two months afterwards. At the autopsy extensive adhesions were found throughout the peritoneum.

Thomas Heath ³ A boy 18 years of age fell a distance of four feet upon the upright shaft of a smith's hammer. Feeling but little pain, he walked a mile. The handle entered three inches from the anus, and produced a triangular wound 1 inch by $1\frac{1}{2}$ inches. Patient died a few hours after the injury of peritonitis. Autopsy showed laceration of the peritoneum and of the right psoas muscle. A piece of clothing was found in the abdomen.

E Atherstone ⁴ A man 25 years old slipped down upon a broom handle which penetrated the bowel $1\frac{1}{2}$ inches above the anus, admitting the forefinger through a valvular opening. Pain in the hypogastrium, vomiting and tympanites were treated symptomatically. Patient recovered in six weeks.

T C Moffat ⁵ A married woman suffering from ulceration and stricture of the rectum used a dilating bougie which passed through the rectum eight inches from the anus rupturing the peritoneum. Patient died about twenty-four hours after the injury. Autopsy showed peritonitis with feces in the abdomen.

W S Forwood ⁶ A girl 13 years of age, jumped over a chair, and was impaled on the sharp end of one of the chair posts. The wood entered the body two inches from the anus and perforated the rectum about one inch above the anus. Patient recovered in about two weeks.

Dr J W Compton A man 24 years of age squatted down on a cut cornstalk which cut its way through the tissues $1\frac{1}{2}$ inches from the anus and made its way out of the rectum $1\frac{1}{2}$ inches above the anus. Recovery was rapid.

T M Throckmorton ⁷ A man 22 years old jumped upon a dung fork. The handle of the tool $4\frac{1}{2}$ inches in circumference, entering the anus, passed up the rectum and into the abdomen between fourteen and sixteen inches, making a rectal opening two inches long three inches from the anus anteriorly.

¹ *Lancet* 1850, vol 1 p 79.

² *Ibid* 1882, vol 1, p. 192.

³ *Ibid* 1887 vol II p 1110.

⁴ *Medical Times and Gazette* London 1863, vol 1 p 11.

⁵ *Medical and Surgical Reporter* 1864 vol XII, p. 181.

⁶ *Ibid* 1876, vol XXXV p 332.

⁷ *Ibid*

⁸ *Ibid* 1885, p. 357.

There were partial collapse, pain, and hemorrhage. Bloody urine was passed. Jaundice and tympanites were noted. As late as the twelfth day the catheter brought away feces mixed with the urine, and in the ninth week urine was passed by the rectum. Recovery perfect.

M T Taylor ¹ A man fell a distance of 25 feet, alighting on the blunt end of a pitchfork $1\frac{1}{2}$ inches in diameter. The handle perforated the tissues one-half inch from the anus, entered the rectum posteriorly, and passed up about eight inches. There was sloughing of the perineum, but the patient recovered with some incontinence of feces.

E Carney ² A man, 30 years of age, fell six feet upon the handle of a pitchfork, which entered the anus and passed anteriorly into the scrotal sac. Feces were discharged through the wound, which was laid open through the sphincter muscle as would be done for fistula in ano. Sloughing of the scrotum occurred, but the patient recovered in about three months.

Tardieu ³ A man, 31 years of age, entered a stable without his trousers. A bull succeeded in introducing his penis into his rectum. The man died eight hours after the injury.

H Burnier ⁴ A boy $17\frac{1}{2}$ years of age, descending from a furnace, fell upon a flat bar of iron one meter long, fifteen centimeters wide, and seven centimeters thick. It entered the anus and produced two perforations of the rectum—one $1\frac{1}{2}$ by 1 cm, six centimeters from the anus, on the right side, opening into the bladder, the second, 18 by 1 cm, eight centimeters from the anus, opening into the vesico-rectal fossa. Patient died forty hours after injury, autopsy showing purulent peritonitis.

Aubert ⁵ A man, 27 years of age, was impaled upon a wooden pole, the end of which, ten centimeters long, entered the anus and produced a wound in the anterior wall of the rectum high up. The stick was removed with forceps, and the patient recovered in fourteen days.

Bryant ⁶ A boy 12 years old, while playing, fell upon a spike of iron on a rail fence, which penetrated his body two inches from the anus, and produced two wounds in the rectum, one three inches from the anus in the posterior wall, and a second one in the anterior wall. In spite of profuse hemorrhage, with collapse, much pain in the abdomen, and tympanites, the patient recovered. The peritoneum was drained by a lithotomy operation.

C S Jeffreason ⁷ A girl, 15 years old, fell on a walking-stick, which entered at the anus, perforated the anterior wall of the rectum by an opening the size of a finger, and entered the peritoneal cavity. She died in forty-eight hours, of peritonitis.

P G Hewett ⁸ A man, 43 years old, was impaled upon the leg of a chair, which entered the anus and produced a lacerated wound of the rectum $2\frac{1}{2}$ inches from the point of entrance. Two fingers could be passed into the bladder and through the bladder into the peritoneum. Patient died twenty-one hours after the injury, and autopsy showed purulent peritonitis.

¹ *Richmond and Louisville Medical Journal* 1871, vol. xi, p. 498.

² *Proceedings of the Medical Convention of Ohio* 1849, p. 14.

³ *Le Rectum de l'Homme* 1873.

⁴ *Rev. Med. de la Suisse Romande*, 1885, vol. v, p. 171.

⁵ *French Congress of Surgeons* 1887, vol. ii, p. 643.

⁶ *Medical Times and Gazette*, 1888, vol. i, p. 563.

⁷ *British Medical Journal* 1874, vol. ii, p. 403.

⁸ *Transactions of the London Pathological Society*, 1846, vol. i, p. 152.

G A. Watson ¹ A boy 17 years old had a bamboo stick thrust into his anus perforating the anterior wall of the bowel and making a wound $2\frac{1}{2}$ inches long and $1\frac{1}{2}$ inches broad five inches above the anus The mesentery and ileum were injured Patient died twenty nine days after the injury of peritonitis Autopsy showed adhesions and pus, with a laceration four inches long in the ileum

SUMMARY

1 While rupture of the rectum by penetrating bodies has been recorded in medical literature only about forty seven times, its frequency is doubtless much greater

2 The arrangement of the internal thigh surfaces of the ischial tuberosities and of the soft parts has a tendency, by a funnel like action, to direct penetrating bodies into the rectum

3 Perforation of the anterior rectal wall at a rather low point is favored by the plica transversalis and by the oblique relation of the rectal axis to the plane of the pelvic outlet

4 Many injuries by impalement are limited in their effect to pelvic tissues by the impingement of the penetrating body on the parts immediately supported by the bones, especially the promontory of the sacrum

5 The shape and size of the entering body bear an influential relation to the character of the lesion

6 Nevertheless, even very blunt objects produce rather clean wounds, as a rule on account of the great force with which the impact is effected

7 Recovery has taken place even when the pelvic and abdominal cavities have been traversed and the thorax penetrated

8 Antecedent scar contraction may pave the way for rupture when bougies and other rectal instruments are used by the surgeon

9 Hemorrhage is not often a danger of grave import.

10 The bladder is the most frequently injured organ after the rectum, although a considerable variety of injuries may take place

11 The nerves of the sacral plexus may be injured by a laterally directed blow

12 The mortality was *nil* in the thirty cases collected in which the peritoneum was presumably not injured

13 When the peritoneum was penetrated, 71.4 per cent of the cases died

15 Operative measures suitable to the nature of the case should be undertaken with as much promptitude after these accidents as in cases of abdominal gunshot injury

¹ *Indian Medical Gazette* 1874 vol. ix p 67

A NEW METHOD OF TREATING PNEUMOTHORAX.

BY GUSTAV I UTTERLR, M D ,

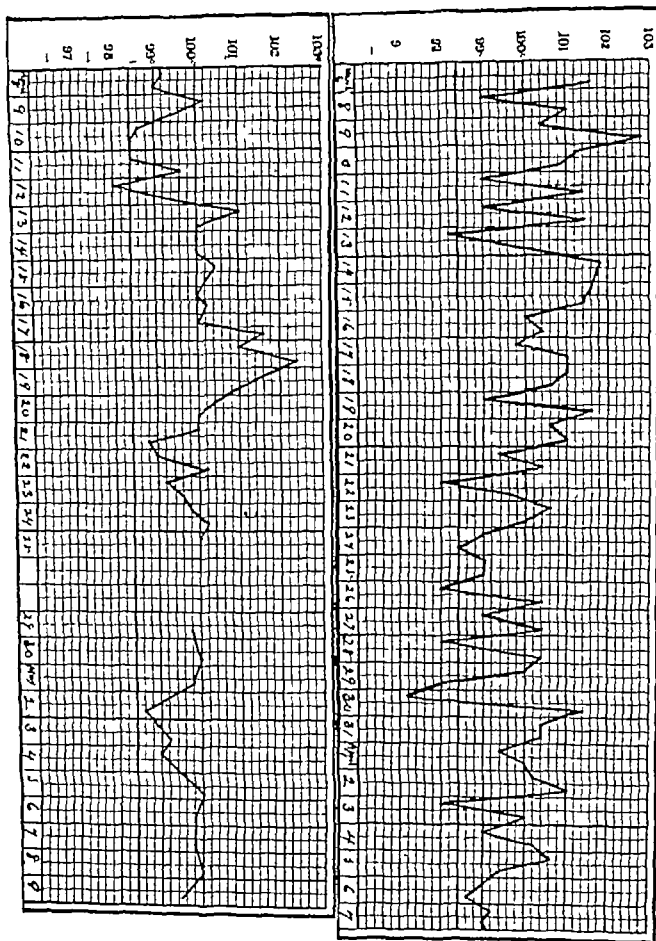
Professor of Physical Diagnosis Chicago Polyclinic Attending Physician Cook County Hospital Attending Physician St Elizabeth Hospital, Consulting Physician Deaconess Hospital

During the month of March last a patient came before me at the Cook County Hospital, who had on his right side a pneumothorax that had originated in a perforation of the pleura of the right lung, apparently caused by a tubercular affection, although tubercle bacilli were not found. Four months before he entered the hospital his appetite failed and he had nausea, severe cough, night sweats, and shortness of breath. Four days before entering the hospital he experienced a sudden sharp pain under the ribs of the right side, in front, a violent attack of suffocation set in, and he thought he would die. At the end of three days he began to feel better, but he was quite exhausted.

The patient, David O'Rourke, 27 years of age, single, was breathing very heavily, necessitating the use of the auxiliary respiratory muscles. He looked anemic, was badly nourished, said he had lost forty pounds, and had a fretful, worried expression. The right half of the chest was distended, there were no respiratory retractions of the intercostal spaces, no pectoral fremitus, but at the hilus pulmonum faint breathing sounds could be heard. There was a small quantity of liquid in the right pleural cavity, and succussion was elicited. The apex of the heart was pressed over to the *left median axillary line*, and the heart could only be percussed from a line about two inches to the left of the sternum, between this line and the sternum there was a zone which gave the same full sound on percussion as the right side. The diaphragm was pressed downward, and the liver also, the latter organ almost reaching the umbilicus. The diagnosis was probable tuberculosis of the right lung, perforation of the pleura, pneumothorax, with pleuritic effusion, and displacement of heart and liver.

During the first three days after admission the highest temperature was 102.8° , while the pulse varied between 98 and 112, and the respirations between 32 and 40. The accompanying chart will give further information as regards temperature.

Taking everything into consideration, I concluded that I would try to again create a vacuum in the right pleural cavity, but decided to wait some weeks to allow the patient to recover somewhat from the severe nervous shock he had experienced and to gain some



NOTE.—On April 25 the patient was dismissed from the county hospital and as a few days elapsed before he was admitted to the St. Elizabeth Hospital no record of temperature was made from the 25th to the 29th of April

strength, as well as to permit the perforation to heal up if a healing process could be established, and to put the supposed tubercular changes of the lung under the beneficial influence of edema and hyperemia, which are both present to a high degree (splenization) in a collapsed lung, and which, no doubt, are a powerful means for destroying tubercle bacilli. I wish here to call attention to the fact that tuberculosis of the lung has but seldom been observed in conjunction with stenosis of the mitral valve, which brings about a chronic hyperemia and edema of the lungs, with red and brown induration.

Several weeks were allowed to pass, the condition of the patient remaining about the same. On the 29th of March, the twenty-ninth day after perforation of the pleura had taken place, a trocar and tube were introduced into the pleural cavity, a little to the right of the middle portion, in the first intercostal space of the right side. The trocar was withdrawn, and the tube (held by an assistant) left in position. Another trocar and tube were introduced into the pleural cavity through the sixth intercostal space in the middle axillary line, and through this tube the whole right side of the chest was filled with a sterilized and filtered mixture of a 0.75-per-cent solution of oil of cloves and water, oil of cloves being the most powerful and least harmful antiseptic against the tubercle bacilli. Another reason for using this mixture was that it would at once cause violent irritation of the bronchial tubes if the perforation had not been closed, thus informing me of this fact and causing me to stop all further proceedings. For further particulars in reference to the preparation of this mixture, its use, etc., I refer to "Scrofulosis, Chlorosis, and Tuberculosis, and their Treatment," by G. Futterer.¹

The patient was in a posture which made the place where the upper tube had been introduced about the highest point of the right side of the chest, so that by filling up the pleural cavity with liquid I expected to be able to force out all, or nearly all, the air contained in the cavity, through the upper tube. After this had been done as well as possible, I took out the upper tube and closed the opening with cotton and collodion. The patient at this time was breathing very heavily, was pale, cyanotic, and covered with perspiration. Strychnine had been injected hypodermically and some whiskey given before the operation was begun. I at once took out some liquid, lowering the level to the second intercostal space, took out the lower tube, closed the opening as above, and left the patient,

¹ *Journal of the American Medical Association* Nov. 30, 1895

who made no further complaints of discomfort The apex of the heart was now pressed over to the *left posterior axillary line*

In performing this operation if the pressure of the liquid, while the patient is almost upright, should cause discomfort, cyanosis, or fainting, the head should be lowered somewhat and the patient turned over to the side which contains the liquid

On April 11, 1000 cubic centimeters of fluid were aspirated, and on the 16th of April the following notes were made "Cardiac vibration reaches from third intercostal space to the sixth, inclusive, and from parasternal line to the anterior axillary line The apex beat and commencing dullness are in the sixth intercostal space and *anterior axillary line* Absolute cardiac dullness commences at the left sternal margin, at the fourth sterno-costal articulation in the parasternal line at the fourth rib, in the mammillary line at the fifth rib and from here the outline runs to the apex in the sixth intercostal space somewhat inside of the anterior axillary line The relative dullness begins at the left sternal articulation with the third rib, to the parasternal line and the mammillary line at the fourth rib, passing from there to the apex. The sternum gives a dull sound at the height of the third rib, and from there downward On the right side of the chest a dullness commences at the third rib anteriorly, running around to the vertebral column when patient is in an upright position The heart sounds can be heard easily, and some breathing sounds can be heard at the apex and below the clavicle and also posteriorly The first and second intercostal spaces show retractions The dullness of liver ends $1\frac{3}{4}$ inches below the costal arch in the right mammillary line, and on the left side it extends one inch to the left of the mammillary line."

On the 19th of April 1200 Cc of liquid was aspirated, and on the 22d of April the findings were as follows "The apex beat is $1\frac{1}{8}$ inches outside of the nipple and one inch inside of the anterior axillary line Absolute cardiac dullness at the sterno-costal junction of fourth rib, parasternal line at fourth rib, mammillary line just above the nipple Relative cardiac dullness at third sterno-costal junction parasternal line at third rib, mammillary line at fourth rib, and from there a straight line passing to the apex On the right side a dullness, indicating the level of the liquid, commences just above the nipple and runs horizontally around the chest The liver gives absolute dullness, in reclining position in the right mammillary line $1\frac{1}{8}$ inches below the costal arch, in the median line at a point midway between xiphoid processes and umbilicus and on the left side five-eighths of an inch to the left of mammillary

answered, and I regret that I have not the apparatus at my command with which to do it

The more important points in connection with this case are That when the pneumothorax was complete, the apex of the heart was located in the middle axillary line of the left side of the thorax. When the right half of the chest was filled with liquid, the apex of the heart was pressed back to the posterior axillary line of the left side, and now it is located one-eighth of an inch to the left of the nipple. There is still some liquid in the right pleural cavity which prevents the heart from again reaching its normal position. The air contained in the liquid used was retained. The small quantity of air present will become absorbed in the course of time.

The patient feels very well and has made no complaint for weeks past. He is out of doors all day long and looks well. Considering that two months and seven days have elapsed since he entered the hospital, he is doing well.

I might have aspirated larger quantities at a time, or I might have shortened the intervals and thus hastened recovery, but desiring a longer contact of a liquid which has bactericidal properties and which must partly be absorbed by the lymphatic openings of the pulmonary pleura, and carried through the subpleural lymphatics to the bronchial glands, thus affecting the primary cause, together with the expected good effects of hyperemia and edema, caused me to adopt a slower method rather than to look for immediate effects. *Causa cessans cessat effectus*

RETINAL DETACHMENT ¹

ETIOLOGICAL FACTORS OTHER THAN MYOPIA.

BY H. O. REIK, M.D. BALTIMORE.

Of all cases of retinal detachment, between 40 and 50 per cent occur as the result of high degrees of myopia, with the severe choroido retinal changes that attend this refractive condition. In a study of the other 50 or more per cent we must attribute their origin to a variety of causes. The first in frequency is trauma. Any severe blow or injury about the head may produce detachment, and in an eye predisposed by choroidal or retinal disease to detach a very slight injury may produce serious consequences. The next largest number of cases are the result of pathological conditions of the choroid or retina produced by those diseases of the kidneys which may be grouped under the general title of albuminuria. The anatomical seat of the eye lesion in this disease is probably the blood vessels, and from the cases reported it would appear that among renal causes the most frequent is what is known as the small granular kidney.

The class of cases offering the most favorable prognosis are those occurring in the albuminuria of pregnancy, for here, if necessity arises, the cause of the disturbance may be removed and there is then a remarkable tendency to spontaneous recovery. The following case of retinal detachment is especially interesting as having occurred during labor. The woman was the mother of eight children and had always had easy labors. Just before the birth of the ninth child her physician made a thorough examination of her urine, but did not discover anything abnormal. The labor was an exceedingly painful one and lasted for twenty four hours. At the height of one of the pains and just after she had made a violent effort she noticed that everything became black before her right eye. When seen a few days after the labor there was nearly complete detachment of the retina of the right eye, the left being quite normal. The violent efforts and straining which she was constantly making led to a rupture of one or more of the retinal vessels, which discharged their contents beneath the retina and forced it away from the choroid.

A few cases of detachment have been reported as due to diabetic retinitis, but such cases are extremely rare. Among other causes

¹ Abstract of report of a special Committee on Detachment of the Retina presented to the Section of Ophthalmology, American Medical Association May 1896.

are syphilis, sympathetic ophthalmia, sunstroke, erysipelas of the face, neuralgia of the fifth nerve, sub-retinal hemorrhage or sero-purulent exudates such as occur in purulent choroiditis, tumors in the choroid or retina, and a cysticercus developing beneath the retina. Despite the greatest care taken, however, in examining our cases, there still remains a large percentage of them in which no cause for the lesion can be ascertained.

The pathology of this affection has not been satisfactorily explained. The Leber-Nordenson theory, which is the most generally accepted to-day, has, like all those which have preceded it, its weak points.

Though the immediate cause of displacement is so obscure, it is probably safe to say that the vitreous is always the seat of pathological alteration, though such changes may not be, and often are not, apparent upon ophthalmoscopic examination.

THE ANATOMICAL CHANGES IN TWO CASES OF RETINAL DETACHMENT

By R. I. RANDOLPH, M. D. BALTIMORE

I have selected these two cases as being fairly typical of the two principal conditions leading to detachment of the retina. The first was a spontaneous detachment due to fibrillary degeneration of the vitreous, and in the second a small round-cell sarcoma led to propulsion of the retina from the choroid. The chief points in the pathological anatomy of the first case were, *first*, the widespread atrophic degeneration of the retinal layers, and especially of the layer of rods and cones—as a general thing the granular layers were the only ones that were preserved; *second*, swelling of Muller's fibres, *third*, the presence of albuminous drops in various localities, and especially between the choroid and retina and along the neck of the detachment, and *finally*, the transformation of the vitreous body into fibrillæ. In the second case the principal changes were the conversion of the vitreous body into fibrillæ and the atrophic degeneration of the anterior portion of the retina.

It would seem, then, that fibrillary degeneration of the vitreous body is to be found in both classes of cases. In the case of spontaneous detachment it was evident that the fibrillæ were largely concerned in pulling away the retina from its normal position, and, from the arrangement of the retinal folds, shrinkage or contraction from within must have been going on. In this case there was a considerable exudate consisting of layers of albuminous drops rest-

ing on the *membrana limitans externa*, which exudate no doubt played a part in separating the retina from the choroid. In the second case the presence of the sarcoma was sufficient to lift the retina from its position, though even here it was evident at a glance that the retina was subject to a force from within which helped to pull it still further away from the choroid. No rent was discovered in the retina in either case.

In conclusion, then, I may say that the most striking anatomical change in these two cases was the fibrillary degeneration of the vitreous body, a condition which I think is found to a greater or less extent in every case of retinal detachment, and which no doubt is the chief element in the pathogenesis of the disease.

ELECTROLYSIS IN THE TREATMENT OF DETACHED RETINA

BY W. T. MONTGOMERY OF CHICAGO

Within the past few years numerous remedial agents have been brought forward and advocated with more or less enthusiasm for the treatment of detached retina. One of the fullest and most encouraging reports on the application of electrolysis in detachment of the retina is by Dr. Terson, who reports twelve cases so treated with one recovery which had lasted nine months, and five improvements which had persisted for from two to nine months.

Within the last six months four cases have been treated in the Illinois Charitable Eye and Ear Infirmary, the treatment in the main, following the recommendations of Dr. Terson. Positive electrolysis was used. The eye was punctured by the strong platinum-iridium needle at some point of the sclerotic corresponding to the detachment, and a current of five milliamperes applied for a period of one minute. The eye was thoroughly cocaineized, so that the puncture was made without pain, but the patients complained when the current was turned on. The after-treatment consisted in the instillation of a 1 per-cent solution of atropine, the compressive bandage, and rest in bed for one week. No noticeable reaction followed treatment in either case. The cases were all of extensive detachment, only one could be claimed as presenting conditions fairly favorable for successful treatment—this patient was young, his general condition good, and the detachment recent, a little over two weeks, when the electrolysis was used. Of the other cases, the ages were 65, 40, and 67 years, and the detachment had existed for from one to four months.

If we are warranted in drawing any conclusions from such a

meagre report, they would be, *first*, that the treatment is exceedingly painful, but is not immediately followed by severe reaction, *second*, that it is valueless as a curative agent in detachment, and *third*, it may be a factor in exciting inflammatory glaucoma, as occurred in one of my cases

TREATMENT OF DETACHMENT OF THE RETINA

By CASEY A. WOOD, M.D., CHICAGO

The earliest efforts of the ophthalmic surgeon were directed to puncturing the sub-retinal sac, and it was found that this usually brought the displaced membrane into its normal position. As, however, detachment was found to occur a second or third time, or, indeed, in many cases, as often as it was replaced, various expedients were resorted to with the hope of rendering the cure permanent. I may here remind you that the replacement of the membrane does not necessarily mean a restoration of the lost visual function, nor do the visual acuity and the extent of the visual field form a proper measure of the success of a remedy for detached retina as such.

Although much was hoped and expected from Professor Scholer's method¹ of intra-vitreous injections of iodine in this disease, and although a number of cures have certainly resulted from its use, the evidence is on the whole against it as a dangerous and by no means certain remedy. That numerous eyes have been entirely lost from the employment of Scholer's method, I am obliged to confess, and I do not think that, even in its modified form, one would be justified in employing it. We may dismiss, also, as needless and dangerous, the injection of irritating fluids—such as potassium permanganate, suggested, I think, by Darier—through a puncture in the sclera. To this category, too, belong De Wecker's device of a gold suture, and Galezowski's catgut suture—all three intended to produce local inflammatory areas and so bind choroid and retina together.

Terson,² of Toulouse, from a study of twelve cases in which he employed electrolysis of the post-retinal fluid, believes that this method is superior to those of Scholer and Abadie.

Galezowski³ now advocates an operation which he calls poste-

¹ Professor Schoeler. *Zur Operativen Behandlung und Heilung der Netzhautablösung*. Berlin, 1889.

² Terson. *Quelques Considerations sur l'Application de l'Electrolyse à douze cas de Décollement de la Rétine*. *Bulletins et Mem. de la Soc. Française d'Ophthal.*, 1895, p. 151.

³ Galezowski. *Du Décollement de la Rétine et de son Traitement par Ophtalmotomie*. *Memoires et Bull. de la Société Française d'Ophthal.*, 1895, p. 170.

rior ophthalmotomy The instrument used is in the form of an arc of a circle like a curved needle so that a sufficiently large puncture and counter puncture can be made and a sufficient number of retino-choroidal cicatricial points produced to keep the detached membrane in place when it has once returned. He has already followed this plan some seventeen times—in five cases with partial and in two with great success

Probably the most important and most recent original contribution to the rational treatment of retinal detachment has been made by Deutschmann,¹ of Hamburg suggested by Erik Nordenson's² work His first proceeding is intended to sever all connections between the shrinking vitreous and the retina, to allow of a free communication between the posterior chamber and the serous collection behind the retina, to empty the latter space so that the freed retina might return to its normal position, and, lastly, to produce adhesion between choroid and retina at certain points These indications are met by the following operation The previously atropinized eye is cocaineized and a double edged knife is entered at the chosen spot, the conjunctiva being pushed to one side. The knife pierces all the ocular coats sclera choroid, and the detached retina, passing thence obliquely through the vitreous until it touches the opposite side of the bulb, it is then carefully moved to and fro, making a sort of vitreous dissection, and is finally withdrawn Slight hemorrhage occurs at the point of entrance of the knife, and a certain inflammatory action is set up about the wounded points, which process is relied upon to permanently fix the retina to the choroid and so resist any subsequent pulling of the vitreous The patient is kept in bed from eight to fourteen days until the ophthalmoscope shows that the case is cured If the first operation is not a success, the same procedure may be repeated as often as is necessary to produce the desired result

In another class of cases—in their nature more hopeless—Deutschmann has employed a novel remedial process This is the injection, with an ordinary hypodermic syringe, into the vitreous cavity, of the freshly prepared aseptic vitreous of a young rabbit diluted with a $\frac{3}{4}$ per-cent solution of common salt. His results with this method of treatment have been marvellous This operation may have to be repeated two or even three times, and it must be remembered that an inflammatory reaction follows each injection

¹ Deutschmann: Ueber ein Neues Heilverfahren bei Netzhautablösung *Deutsche Med. Woch.* 1895, p. 345, and *Beiträge zur Augenheilkunde*, 1895, heft xx.

² Nordenson: Die Netzhautablösung Untersuchungen ueber deren Pathologische Anatomie und Pathogenese. Weisbaden, 188

My own experience in this disease has led me to think, with Bull¹ of New York, that we have as yet discovered no better device than that resorted to by the older ophthalmologists, viz rest in bed, bandages, atropine, and the internal use of some absorbent.

In conclusion, this review of the treatment of detached retina would be incomplete without a reference to spontaneous cures. Very many cases are met with in the literature, indeed, one may safely say that of all the histories of cures, temporary and permanent, at least 10 per cent were accomplished without treatment. So numerous and well authenticated are they that I cannot help thinking that a large percentage of the results obtained after iridectomy, after removal of the lens from the use of atropine, bandaging, pilocarpine, etc., even some cases of cure following posterior operations, are really brought about by local and general rest—by putting patients in such a position that they cannot by overexertion of any kind make a bad matter worse. The retina, having meantime broken loose from its connection with the shrinking vitreous, returns to its normal position and the treatment, medical or surgical, gets the credit of it.

DISCUSSION

Dr J A White Richmond, Va. This method of referring subjects to a committee for consideration is an admirable one, and the committee this time is to be congratulated upon the character of its work in laying the subject before us in its every aspect. They have reviewed the subject to date and told us something new, but still I do not think our knowledge of retinal detachment is much advanced from what it was twelve months ago. My knowledge of the anatomical conditions in detachment is very crude. In considering the etiological factors of detachment we are also to some extent groping in the dark. Apart from myopia, tumors, sub-retinal hemorrhages and effusions, I do not think we have any very sure foundations for explaining the many cases we meet with where there is no apparent cause whatever. As Dr Reik said, "It is important to know the causes in order to decide upon the method of treatment," but in many cases this cannot be established. When we come to consider the treatment I quite agree with Dr Wood, that up to the present time, notwithstanding the many suggestions offered us that were each in turn expected to be sure cures, we are

¹ Bull New York Medical Journal September 1892.

still as badly off as we were many years ago. Certainly the old treatment of rest, diaphoretics, pilocarpine, etc., gives us as good results to-day as any of the operative procedures. It is only in the recent cases of detachment that we have had any satisfactory results from any of the methods. Among the things that I have tried are rest, iridectomy, sclerotomy, paracentesis, and sclero-puncture, and I am not wedded to any method of treatment. I do not advise operative measures except in cases where the macula is involved, and not even then if there exists a condition likely to lead to hemorrhage. As we know that spontaneous cures often occur, it is difficult to say in any given treatment that the good results obtained would not have occurred anyway. Electrolysis may be a good thing certainly much has been claimed for it. The galvano-cautery is too dangerous and risky and should be placed in the same category with injections of iodine. Deutschmann's method has been mentioned, but I think that neither he nor any one else has yet had sufficient experience with it to warrant a good report. One method that has not been mentioned here is that of Strau. He frees the conjunctiva from the sclera over the site of the detachment, makes three little slits in the sclera, such as you see a man make in his shoe over a tender corn, and then unites the conjunctiva over this with sutures and allows it to heal. He then makes injections in this region of a 1/5000 bichloride solution, and from this has claimed very good results. As he has so recently proposed the method, of course no statement as to permanent results can be given. It is simply an experiment, like all the others and may perhaps be thrown overboard. My own experience has not been very great. I have not tried the injections of rabbit vitreous. I have watched some cases in private practice from their very start. One was in a physician, associated with a low grade of myopia, corrected by a -2.50 D for distance, with which he has had for fifteen years almost perfect vision. Recently he came to say that he had a little spot in his eye. I paid no attention to it, thinking it simply a *muscae volitantes*. Some time later he complained of an increase of this spot, but I still could not find any opacity with the ophthalmoscope. A few weeks later the spot became visible, looking like a floating body, and I then told him that his vitreous was undergoing liquefaction, though he never had any alteration of refraction or any changes in the choroid that I could determine. Soon I noticed a secondary detachment and although we gave treatment by rest pilocarpine, etc., in sixty days the detachment was total. He from the first refused an operation because he was well

acquainted with the subject and knew the slight chances of success I doubt myself if vision could have been preserved

Dr Lyman Ware, Chicago, Ill I am glad to have heard Dr Montgomery's paper We always enjoy having our opinions confirmed, whether such opinions have been well founded or not I do not for a moment question the correctness of the report of Dr Terson's cases, but I was not convinced that electrolysis was the cause of the result One question that occurs to me is whether using a positive pole is a rational treatment One of the first things settled in regard to the use of electricity was that the positive pole produced coagulation and the negative pole diffusion Now the question arises Would not absorption be best brought about by the use of the negative pole? Of course, from the nature of things it appears that no treatment will give very good results The very fact that we have such a variety of treatments offered shows that none is satisfactory

Dr A R Baker, Cleveland, Ohio I have had but slight experience in these cases, and hope I shall never have more I wish, however, it were possible to make a more scientific classification In the case of hemorrhage, tumors, or trauma, the detachment is simply an incident, and, as in those cases produced by Bright's disease, if the cause could be removed the case would recover We have a hospital in our city connected with the poorhouse I have quite a number of cases there, and have put them in the hospital on their backs Formerly I made a scleral puncture, but lately I have omitted that I remember one case where there was almost complete detachment in one eye, existing for a number of years and followed by detachment in the other I kept him under treatment for six months, and discharged him with fairly good vision About three years later I found him back in the hospital, blind, and with no prospect of recovery We still have much to learn in regard to these cases, and treatment in my experience is very unsatisfactory

Dr G E de Schweinitz, Philadelphia, Pa I wish to deprecate the report of cases of retinal detachment submitted to operative interference before sufficient time has elapsed to test the sufficiency of the cure, and I could illustrate what I mean by reporting cases which have been under treatment shortly after having been reported as cured in other hands I would suggest that Deutschmann's results in human beings with injection of sterilized vitreous should be proven upon animals In this connection I would refer to my own results with intra-ocular injections Thus far I have found that

aqua chlori is the only substance which can be injected into the vitreous with impunity

Dr D S Reynolds, Louisville, Ky The committee deserves great credit for its admirable work, but I am unprepared to accept the details of the pathologic changes described by Dr Randolph It is by no means clear that the drawings furnished are sufficiently accurate to support the accompanying descriptive language Much confusion necessarily follows the translation of the descriptive language of foreign observers We all know that the normal retina cannot be shown to contain pigmented layers, yet Dr Randolph's report contains a reference to that impossible condition As Dr Baker has said, "Much confusion results from lack of proper classification of cases of retinal detachment subjected to treatment" In my own experience results have been in some cases very encouraging at first, but, in a few months at most, relapses have occurred. In persons under fifty years of age in good general health, medicinal treatment often yields brilliant results, but in nearly all cases re-detachment comes on in course of time My attempts at operative treatment have yielded results in no wise more encouraging than by the salicylates, pilocarpine, and iodides, with rest in bed Much remains yet to be done before we may claim positive permanent recoveries from any treatment

Dr R L Randolph, Baltimore, Md In reference to Dr Reynolds' remarks, I beg to say that the drawing is not my own, but was made by an artist from one of my sections I will be glad to send Dr Reynolds my sections, and he can confirm my observations While nothing positive has been added to the therapeutics of this subject, I think we have gone over the whole ground thoroughly, and it is always a help to know the present status of any subject

BOOK REVIEWS.

INFANT MORTALITY DURING CHILDBIRTH, AND ITS PREVENTION By A. Brothers M D, B S Philadelphia P Blakiston, Son & Co

According to the statistics of infantile mortality in New York City during four representative years, from 1889 to 1892, 10 per cent of the children born in that city die before they reach the age of one month

These figures agree with those of Julius Cross, who has lately published the results of his extended studies in the same field He worked from a basis of the mortality tables of sixteen large European cities and reports that 10 per cent of the children born alive die within the first four weeks of life, also, that the largest mortality occurs on the first day of life

In view of these unfortunate facts the William Furness Jenks Prize committee of the College of Physicians of Philadelphia selected the subject, "Infant Mortality during Labor, and its Prevention," for the second award of \$500

The winning essay, "Vive l'Enfant," by Dr Brothers, is now published by the memorial committee as above

The author is not a specialist in pediatrics, his work in the hospitals of New York and his connection with the colleges being mainly gynecological But this is as it should be, and is quite consistent with our belief that one cannot be practically trained in gynecology or obstetrics without gaining, meanwhile, a helpful knowledge of the interests of childhood, "previous to labor, during the critical hours of actual labor, and in the earliest period of life succeeding labor" These interests are most lucidly set forth in what the author is pleased to call an essay, but which might as well be granted at once the title of text-book, so certain is it to become a standard manual for students and teachers

We have here a concise and practical *résumé* of the entire subject of infantile mortality with a careful consideration of all contributing maternal causes antedating, accompanying or following accouchement

All superfluous matter and all extraneous writing is carefully eliminated Each chapter contains a clean, clear-cut presentation of the subject, and closes with a reference list of literature to be consulted

It is needless to say that the general practitioner as well as the accoucheur should be conversant with all the better known methods of resuscitation of the still-born infant A study of the chapter on Asphyxia will prove to be of great value

Cranotomy comes in for a strong indictment, and, because this is short and expresses the aggregate of modern opinion, we quote it entire "In the cases considered, the condition of the mother and child has been presumed to be good Where this is not the case, particularly if the child be positively dead, then, and then only, can the question of cranotomy come up for consideration Cranotomy of the living child is still advocated by certain recent writers (Leopold, Rosenberg) under circumstances where the general condition of the mother is precarious Others are equally opposed to the procedure (Pinard, Grandin) The general drift, however, of modern obstetric surgery is so clear that it will not be many years before perforation of a living child will

be regarded as a barbarism of the past, and even perforation of dead children will be an operation of great rarity. There was a time not many years ago when craniotomy was resorted to three or four times more frequently than forceps (Playfair) but with the progress of our science we hear less and less of this horrible operation. The only indication to-day for the operations of craniotomy, decapitation or evisceration is first and always the certainty of the child's death. Then only in certain cases of large fetal head or body tumors, monstrosities, impaction after version etc. is this operation at all justifiable."

In this connection it is well to remember that many an operator who would shudder at the idea of performing craniotomy will undertake without a tremor a high forceps delivery, an operation showing a fetal mortality of 60 per cent., and which is regarded as hardly less dangerous than Cæsarean section.

These inconsistencies are not lost sight of in the book and Dr. Brothers' reasoning is sound from first to last. *Vive l'Enfant!*"

LEHRBUCH DER VERGLEICHENDEN PATHOLOGIE UND THERAPIE DES MENSCHEN UND DER HAUSTHIERE FÜR THIERÄRZTE, ÄRZTE UND STUDIRENDE.¹ By Georg Schneldemühl. 1895.

The first volume of this recent publication treats of "The Infectious Diseases of Man and Domestic Animals."

The author is privatdocent of veterinary medicine at the University of Kiel. As a writer he is well known to the readers of medical literature which makes an elaborate introduction quite unnecessary. Dr. Georg Schneldemühl began his study of medicine at Berlin and after many years of practical experience again took up a course of study this time at the University of Halle. Later on he was appointed by the German Government to a medical position in the marine department. He has also held the position of clinician at the University of Kiel for many years.

As a text book this work is a valuable addition to medical literature presenting the subjects in systematic form and possessing what is so characteristic of many German writers, thoroughness and precision.

The synonyms for the various diseases are usually given in several languages as German, English, French and Italian, and in many instances the derivation of the same is also given—for example Typhus derived from *τύφος* and meaning hazy or clouded brain hence used to signify many diseases in which this occurs as a symptom. In man it includes what now is restricted to (1) typhus abdominalis (typhoid), (2) typhus exanthematicus (petechial fever) and (3) typhus recurrens. In animal diseases the term is equally vague and includes influenza, petechial fever, anthrax and others.

Frequent reference is made to such well known writers as Virchow, Hügge, Pasteur, Bollinger, Dieckerhoff, Friedberger, etc.

The system followed is similar to that of most text books of medicine and treats the subjects in the following order: Historical note, etiology, bacteriology, modes of spreading, symptoms and course, pathology, diagnosis, prognosis, therapy, and sanitary considerations, also the laws regulating the practice and post mortem work in the more virulent diseases.

Most of the diseases are found both in man and animals, some however, only in man as measles, scarlet fever, etc. and others only in animals. The

¹ A Text book of Comparative Pathology and Therapy of Man and Domestic Animals, for Veterinary Surgeons, Physicians and Students.

pathology and symptomatology are most fully treated, and the therapy is usually only outlined. Serum-therapy is recommended in all cases in which it has proven useful. The bacteriology, given in fine print, is quite complete, embodying a short historical note, description, methods of culture, virulence, etc.

The close relationship existing between the diseases of man and those of the domestic animals, although long recognized, has heretofore not been much written about. Hippocrates had already noted the similarity. Galen later endeavored to explain the pathology of man from that of animals. It had been noted that fishes sometimes died in large numbers, and this was ascribed to epidemics, also that epidemics in birds often preceded those in man (Bergman). He also noted that dogs could withstand greater injuries than man, rabbits, and most other animals. Virchow says no distinction should be made between the pathology of man and that of domestic animals, and at present, as is well known, much use is made of animals in experimental research in bacteriology and pathology.

The occurrence of anthrax, glanders and rabies in animals is well known. Full and detailed descriptions are given of these.

The description of tuberculosis in man and the various domestic animals is complete almost to elaboration, the forms in animals, pulmonary and peritoneal, are emphasized and their mode of origin stated in detail. Statistics show that only a small percentage of calves are affected with tuberculosis, hence the malady is not often congenital, as is commonly supposed. The etiology embraces inhalation of dried sputum from man or affected animals, and eating of food contaminated by the same. The percentage of cattle affected varies from 2 to 70, being highest in those most closely quartered and near densely populated districts and lower in the rural and mountainous districts. It occurs more in females than in males. Milk, when consumed unboiled, is said to be a common cause of tuberculosis in man. Tuberculoses of the horse, pig, house animals and birds receive short chapters.

Foot-and-mouth disease, and its relations to aphthous stomatitis in the human, has an interesting chapter. Syphilis thus far has been found only in man. True gonorrhea is limited to man, but similar affections are found in house and other animals. Cholera likewise is limited to man, but affections closely resembling it are found in animals. Dysentery and croupous pneumonia also occur both in man and animals (as the horse, cow, and house animals), and receive detailed accounts. Parotitis epidemica, although found in both, is rare in animals. Cerebro-spinal meningitis and articular rheumatism occur in both animals and man quite frequently.

Some of the less common diseases, as catarrhal fever of dogs, actinomycosis, botryomycosis, yellow fever, pest, beriberi disease, dengue, milk sickness, proteosis, Ak-Paipak and Bradshot disease of sheep, are given interesting and instructive chapters.

PROGRESS OF MEDICAL SCIENCE

MEDICINE

UNDER THE CHARGE OF JAMES B. HERRICK, A.M., M.D.

Adjunct Professor of Medicine Rush Medical College Attending Physician to the Cook County Hospital Chicago

Soft Rubber Sound an Aid to Gastric Diagnosis —

In 1875 Leube advised the use of a stiff sound as a means of diagnosis of the position of the greater curvature of the stomach. The bulbous extremity of such a sound passed into the stomach could be palpated, and in this way the position of the lowest point of the stomach determined. Leube himself, however, gave this up as a means of diagnosis, finding that where aught could be learned by this method other methods sufficed, and where it might be of value (as, for instance, in patients with thick abdominal walls) it frequently failed. Boas (*Centralblatt für Inner. Medizin*, No. 6, 1896), in making investigations of the stomach by means of a tube with a revolving point, quite similar to the gyromele of Dr. Turck, found that he could frequently palpate the soft rubber sound even when it was quiet. He examined thirty cases of different kinds, and found that in twenty five he could palpate the sound with the greatest distinctness as it lay against the greater curvature of the stomach. He therefore believes the soft rubber sound is a valuable aid to the diagnosis of gastric dilatation and gastroptosis. The examination is best made with the stomach empty or only partially filled, and with the patient recumbent. Filling the stomach with water, or having the patient stand erect, causes the greater curvature to descend several centimeters. Incidentally, the author takes occasion to state that the method of gastroduaphany is of doubtful value. He also believes in the possibility of palpating the sound that has been introduced into the rectum and colon.

The Temperature of the Mouth —

Dr. Leonard Williams has made experimental observations on the variations in the temperature of the mouth in health, produced by local application of heat and cold. While his conclusions will not alter the every day manner of taking the temperature under the tongue, as this answers every practical purpose, they may be of value where extreme accuracy is desirable.

The author sums up as follows (London *Lancet*, Oct 26, 1895) "It seems probable that the modification in the temperature of the mouth induced by the local application of heat and of cold depends partly upon the modification in the temperature of the tissues of the mouth brought about by the temperature of the fluid in use, but that this portion of the modification is of short duration, the more important and lasting portion of the change seems to be due to variations in the blood-supply brought about by vaso-motor action. Whether this be connected with the increased activity of the salivary glands, or not, is at present doubtful. From the clinician's point of view the most important conclusions from this investigation are as follows: 1. Heat and cold when applied to the mouth even for a very short time cause marked variations in the temperature of the mouth. 2. The effect of heat, though less pronounced, is considerably more prolonged than that of cold. In practice, if a great degree of accuracy be required, I would suggest that the temperature should never be taken in the mouth unless other parts are inaccessible, but if only the mouth be available, then attention should be paid to the following points: (a) one hour at least must have elapsed since the last food or drink of any kind, and even in the smallest quantity, has been taken by the patient, and (b) for ten minutes previous to inserting the clinical thermometer the mouth must have been kept completely closed. Under such circumstances as these, and under them alone, is a temperature taken in the mouth a reliable index to the body temperature."

Icterus from Lactophenin —

Wenzel (*Centralblatt für Innere Medizin*, No 6, 1896) reports a case of icterus from the use of lactophenin. This drug has been regarded as the safest of the entire group of antipyretics and analgesics. In a recent discussion, reported in the *Berliner Klinische Wochenschrift*, No 46, 1895, several physicians, while reporting cases of poisoning from phenacetin, acetanilid, antipyrin, salicyl, etc., looked upon lactophenin as practically harmless. Very rarely had bad results been noticed.

The case of Wenzel was a man, 34 years of age, a sufferer from hysterical neuralgic pains. Chloral and bromide were of no value, and finally five grains of lactophenin, three times a day, were administered. This was taken for fourteen days, and then a jaundice with very slight disturbance of the gastro-intestinal tract manifested itself. Wenzel calls attention to somewhat similar cases reported by Strauss. As to the cause of the jaundice, he discards

the theory of Strauss that it was due to mechanical irritation of the papilla of the common duct. There was so little gastro-intestinal disturbance that he scarcely thinks it was an ordinary obstructive jaundice secondary to gastro-duodenitis. He is inclined to look upon the jaundice as in part, at least, hematogenic, and believes that there is a hemolytic process the result of intoxication with paramidophenol, which is formed in the process of disintegration of the lactophenin.

Amœbic Abscess of the Liver in a Child —

The comparative rarity of abscess of the liver in children, and the fact that amœbic abscess in this class of patients has not been previously reported, makes the case of Slaughter (*Virginia Medical Monthly*, 1895, p. 722) one of unusual interest.

A frail, delicate-looking colored boy of seven years had a slight attack of dysentery in September 1894. This apparently yielded to treatment. Occasional diarrhea was, however, present until early in January, 1895. At this time a varicella like rash appeared upon the body, disappearing in a few days. January 18, he complained of abdominal pain. Following this there developed fever, rapid pulse, diarrhea, hacking cough, tenderness in the hepatic region. By January 28 the right lobe of the liver was perceptibly enlarged. Aspiration on the 29th revealed viscid, chocolate colored material containing blood cells, some pus corpuscles, and amœbæ coli. Incision and drainage were followed by temporary improvement. Death occurred February 7. Two days before death the right parotid gland became swollen and tender.

The autopsy showed the ordinary changes of amœbic hepatic abscess. The parotid gland was not examined, so that no light was thrown upon the question of metastasis in cases of amœbic dysentery and amœbic abscess of the liver.

Etiology of Inherited Tuberculosis —

Bar and Rénou (*Compt Rend des Séances de la Soc de Biol*, No. 23, 1895, *Centralbl für Innere Med*, January, 1896) make a contribution to the causation of inherited tuberculosis in infants. In five cases of parturition in tubercular mothers, the blood from the placental end of the umbilical vein was received into sterile vessels and injected under the skin of guinea pigs. In three of these cases the results were negative. In two, both cases of severe pulmonary tuberculosis, the results were positive. In the first case the child was still born, and fragments of some of the organs taken

almost immediately after birth caused, when injected into guinea-pigs, tuberculosis, in the second case the umbilical blood was injected into two guinea-pigs, one of which remained healthy, while the other died in two and a half months, and the autopsy showed tuberculosis of the spleen, lungs, liver, mesentery, and kidney. Tubercle bacilli were present.

Significance of Indicanuria —

Testi (*Polichinco*, April 15, 1895) reports the results of his investigations on the significance of indican in the urine. He practically confirms what several observers have found, namely, that while indicanuria is met with in suppurative processes in the body, it may also be due to gastro-intestinal disturbances of various kinds. Testi found indican in the urine in empyema, fetid bronchitis with stagnant secretion, suppuration following pneumonia, and in several surgical cases where there were abscesses in different parts of the body. While he does not agree with Keilmann's early observations, that indicanuria is always an evidence of suppuration, he believes that when other causes for the appearance of indican can be excluded (as, for example, disturbance of the gastro-intestinal tract), indicanuria may be of positive value as an aid to diagnosis.

Acute Nephritis following Eczema —

Brulins (*Berliner Klin. Woch.*, No. 28, 1895) reports seven cases of acute nephritis occurring during the course of eczema. All of these were, he believes, secondary to the eczema and not to any medicament applied. He is unable to explain the exact etiological connection, but lays great stress upon the presence of a certain predisposition of the individual to nephritis, for while many patients with a universal eczema escape with no renal complication whatever, others with but a local involvement of the skin develop an acute inflammation of the kidney.

Pneumococcus Abscess from Hypodermic Injection during Pneumonia —

In *La Semaine Médicale*, 1896, No. 4, Zuber reports a case of pneumonia in which, following a subcutaneous injection of the benzoate of caffeine, an abscess developed *in loco*. From the pus the diplococcus of pneumonia, alone, was obtained in cover-slip preparations, cultures, and inoculation experiments.

The case is a striking illustration of the localization of infectious organisms at a point of lessened resistance.

SURGERY

UNDER THE CHARGE OF WELLER VAN HOOK A.B., M.D.,

Professor of the Principles and Practice of Surgery Northwestern University Medical School Chicago.

Simple Preparations for Aseptic Operations —

In *The Corpuscle* for February, 1896, Dr A J Ochsner gives some simple directions for preparing for aseptic operations under unfavorable circumstances. His methods are so simple that they deserve to be more widely known. Doubtless every surgeon of considerable experience has devised for himself very similar methods to be practiced in private houses where filth was an element to be contended with, and the less experienced operator will doubtless be interested in the study of his methods.

Dr Ochsner says Silk, silkworm-gut and horse hair are enclosed in a few thicknesses of gauze and placed in a closed vessel—a tea kettle or an ordinary tin dinner pail with a lid will do. This is placed on the stove with enough water to thoroughly cover the material, and boiled for an hour. It is then preserved in a 5 per cent solution of carbolic acid in water. It becomes brittle after it is a year old.

Catgut is prepared as follows. E violin strings and medium banjo strings are the most convenient sizes and can be obtained at any music store. They are immersed in strong sulphuric ether in a tightly corked bottle for one week, in strong alcohol containing one grain of corrosive sublimate to the ounce for one week, then preserved in strong alcohol indefinitely. The alcohol should be changed once a month, as it becomes weakened by absorbing moisture from the air, which diminishes its antiseptic power.

Any suturing material which has been taken from the preserving bottle and handled during an operation should be put through the original process of disinfection before it is used. Instruments are most readily disinfected by boiling in a solution of bicarbonate of soda, a tablespoonful to the quart of water, for half an hour. Knives should be made out of one piece of metal, so they can be disinfected by scrubbing thoroughly with strong alcohol. Needles are very common carriers of infection. By heating them in an alcohol flame and then dropping them quickly into strong alcohol, they can be disinfected without having their temper spoiled.

The hands should be kept habitually clean. It is an extremely bad habit to 'puddle in pus' perpetually. Of course, one cannot always avoid touching pus, but one can easily dress suppurating

wounds or open small abscesses without getting infectious matter upon the fingers

The best means of making the hands aseptic is by the free use of soap, warm water, and scrubbing-brush, then washing with strong alcohol in order to dissolve any fatty material which may still adhere to the skin,¹ then cleaning the nails with a blunt pen-knife or nail-cleaner, and then once more washing thoroughly with soap and warm water and scrubbing-brush, in order to remove any loose material. The same method suffices for the preparation of the field of operation.

For the purpose of illustration, we will suppose that we are called to perform an operation for a strangulated hernia upon an exceedingly filthy patient in one of the dirtiest hovels in the country or in the city, with no one to assist us except a colleague who carries millions of microbes under his finger-nails. How shall we proceed to meet this emergency? We have in our surgical bag the necessary instruments—a razor, scalpels, dissecting-forceps, scissors, hemostatic forceps, a pair of long-handled sharp retractors, needles—these have been sterilized at home and enclosed in a clean towel or canvas bag. We also carry a nail-brush, soap, a pint of strong alcohol, two ounces of flexible collodion, a five-yard package of aseptic or antiseptic gauze, and half a pound of absorbent cotton, also half a dozen clean towels wrapped up in a towel and this again in a piece of strong wrapping-paper. We have the necessary suturing and ligature material, prepared in the manner already described. All of these things can be carried in a moderate-sized satchel.

Arriving at the house, we place a tea-kettle full of water on the stove to boil, then we place the kitchen or dining-room table near a window, spread a quilt over this, and place a pillow at one end. All of this is covered with an oil-cloth, if one is at hand, and this with the cleanest sheet that can be obtained, or with one of our towels at the point where the operation is to be performed.

We next scrub our hands in the manner described, and treat the patient's abdomen and thighs in the same manner, carefully shaving the skin in the vicinity of the operation. For washing we use the water which has in the meantime been boiled. A pad of absorbent cotton saturated with strong alcohol is placed over the area to be operated upon, and left in place until the beginning of the operation in order to dissolve the fatty material contained in the upper layers of the epidermis.

¹ The alcohol has a marked germicidal power when applied to objects moistened with water.

Four plates are now found and thoroughly scrubbed with soap and hot water and then with strong alcohol. On one of these plates we place our instruments, on a second one, pieces of aseptic gauze to be used as sponges, on a third one, ligatures and sutures already threaded, and on the fourth one, the dressings to be applied when the operation is completed. All of these preparations have occupied less than half an hour, and still they are as perfect as though the whole shanty had been turned upside down and every nook and corner had been disinfected.

The patient is now placed on the table and anesthetized. The field of operation is once more scrubbed with water and then with alcohol, and surrounded with four clean towels. We wash our hands once more with alcohol and with boiled water, and ask our colleague to do the same. From this time until the operation is completed and the wound dressed we touch nothing but our sterilized instruments, sponges, sutures and ligatures, and the wound. Should our colleague forget himself and touch any unsterilized substance, he must scrub again. The four plates with their aseptic contents are carefully placed where no one can reach them except the operator.

Our colleague is on the opposite side of the table and can assist us very materially by keeping the wound open with the long handled retractor while we do everything ourselves. The operator is responsible for the wound and must see that no one else infects it. At the same time, he must not offend his colleague, because it will very materially enlarge his sphere of usefulness if he can gain both the good will of his colleague and his admiration for skill and care.

After closing the wound it is well to seal it by placing strips of gauze two inches wide over the incision and fastening down the edges by applying an abundance of flexible collodion. A large absorbent-cotton dressing is applied over this and held in place with adhesive plaster and with a spica bandage in a manner which will prevent the patient and his or her friends from touching and thus infecting the wound.

Now the patient is ready to be returned to the filthy bed. Notwithstanding this and all the other undesirable conditions we can feel certain that the wound will heal primarily, and that the result of the operation will be perfectly satisfactory from the standpoint of aseptic surgery. The microbes in the bed, or on the ceiling or the floor, have not been disturbed in the least, but we are certain that no dirty hands or instruments have come in contact with the wound, and consequently it must be aseptic.

Tubercular Abscesses —

Dr Newton Shaffer, the well known orthopedic surgeon of New York, during the past four years has treated all the cases which entered his hospital with tubercular abscesses by the plan of non-interference. Thirty-five patients presented themselves with abscesses, and twenty-six of these remained under the care of the institution a sufficient length of time to test the value of the plan. The results were so successful that Dr Shaffer publishes them in the *New York Medical Journal* (Feb 29, 1896), with a strong recommendation to his fellow practitioners that a similar plan of *let alone*, so far as opening the abscesses is concerned, be adopted, although it must be remembered Dr Shaffer is a master of mechanical treatment of tubercular lesions, which is doubtless the chief factor in his success. Of these twenty-six patients, three had each two distinct abscesses, making twenty-nine abscesses treated in all. In two of the double-abscess cases there were large bilateral ilio-psoas abscesses, and it is worthy of note that absorption of the abscesses occurred in all these cases. Of the twenty-nine abscesses, eight (27.58 per cent) underwent complete absorption, nineteen (65.51 per cent), after opening spontaneously, closed under simple external dressings, in periods ranging from two to twenty-one months, and in two (6.89 per cent) there are still small sinuses discharging a few drops daily. Of the twenty-nine abscesses, 93.09 per cent have either closed or been absorbed. Of the remaining nine patients, one was removed by her mother after the efforts of the surgeons, up to the time of removal, had failed to produce an adequate joint-protection on account of the location of the abscess. In one instance the abscess was nearly well when the patient entered the wards.

In seven instances the patients either entered the wards with phthisis pulmonalis, or had multiple joint disease, or were removed from the care of the hospital while under active treatment. Of these seven, five died, and two have small sinuses which discharge slightly.

BACTERIOLOGY

UNDER THE CHARGE OF GEORGE H. WEAVER, M.D.,
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A Study of the Infectiousness of the Dust in the Adirondack Cottage Sanitarium —

Irwin H. Hance (*Canadian Practitioner*, January, 1896) gives a very interesting *résumé* of the literature bearing upon the infectious character of tuberculosis, and relates some instructive experiments

upon the subject These were done at the request and under the supervision of Dr Trudeau at the Saranac Laboratory, and consisted of inoculations, into the subcutaneous tissues of guinea pigs, of suspensions of dust from the various buildings and cottages of the Sanitarium A total of eighty-one inoculations was made, all but eight of which gave a negative result Three of the animals died of rapid acute infections the remaining five fatal cases were infected with tuberculosis They all occurred among the ten animals which were inoculated with dust from the "Red Cottage" which had been occupied by the sickest patients and by one who was notoriously careless as to spitting about the cottage

The author seems justified in concluding that the freedom from infectious material of the dust from sixteen out of seventeen buildings tested is due to strict measures in disposing of sputum The patients are carefully instructed concerning the disposal of their sputum, and close supervision of them is maintained The pasteboard cuspidors are burned daily, as are the Japanese napkins as soon as possible after using Paper napkins are used in the infirmary in hemorrhage cases or where patients are too feeble to get up on their elbows so as to use a cuspidor These are used but once, then placed in a pasteboard receptacle and soon after burned In addition to these measures the author insists upon general good hygiene, etc. These results show that buildings may be occupied by consumptives for years and still be uncontaminated by infectious material if the discharge of bacilli from the patient be properly cared for

THERAPEUTICS

UNDER THE CHARGE OF N S DAVIS, JR. A.M. M.D.

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Hydrochloric Acid and Gastric Fermentation —

Bial (*Medical Week*, December, 1895) gives us an exceedingly interesting study of the relation of hydrochloric acid to fermentation in the stomach and to some of the variations which may be encountered in gastric digestion

It has been claimed that yeast possesses a marked power of resistance to the action of hydrochloric acid, but Dr Knaus has found that a solution of hydrochloric acid in the proportion of 1 to 5000, in which consequently there is five times less hydrochloric acid than in normal gastric juice, is sufficient to prevent the fermentation of yeast That hydrochloric acid acts as a disinfectant in

respect of fermentative processes is, therefore, obvious. Consequently when this action of the hydrochloric acid is not manifested in the stomach, the gastric juice presumably contains an agent capable of neutralizing it, thus favoring fermentation.

The author is, as a matter of fact, convinced that the disinfectant action of hydrochloric acid may be checked by the addition of sodium chloride in quantities varying according to the circumstances in each case. In his experiments he first employed 30 Cc. of a solution of grape sugar, the strength of which varied between 2 and 8 per cent. This was left for fifteen hours in the autoclave at a temperature of 40°C , after a certain quantity of yeast had been added to it. If the amount of yeast was too small to permit of the sugar being all decomposed within fifteen hours, such total decomposition within the stated time was obtained by adding to the liquid a certain quantity of sodium chloride. On gradually increasing the quantity of this salt, he found that when it had reached a certain degree (indifferent point) fermentation was no longer stimulated, after which it decreased in proportion as the concentration progressed, and ultimately ceased entirely.

These experiments were repeated with solutions which contained hydrochloric acid in variable proportions, corresponding to a hypo-acid, normal, and hyperacid state of the gastric juice.

In the hypo-acid solution, from 8 to 5 per cent of sodium chloride neutralized the disinfectant action of the hydrochloric acid. The same result was obtained in a normal acid solution with from 8 to 3.75 per cent of sodium chloride. A saline solution in the proportion of from 3.75 to 4.5 per cent had no effect on fermentation (indifferent point). When present in larger proportion than 4.5 per cent, the sodium chloride enhanced the disinfectant action of hydrochloric acid. In a hyperacid solution the disinfectant action of hydrochloric acid was increased by even a very small quantity of sodium chloride.

Seeing that the hydrochloric acid in the stomach is combined with albumoses and peptones, the author experimented also with peptonized and pepsinized solutions of this acid. Whatever the degree of acidity of these solutions, sodium chloride in any proportion always increased the disinfectant action of the hydrochloric acid.

The stomach, however, contains hydrochloric acid partly in a free state, partly in combination. He therefore also carried out experiments with mixtures containing both free and combined hydrochloric acid, representing the three degrees of gastric acidity.

The hypo-acid mixture contained .02 per cent. of free and .06 per cent. of combined hydrochloric acid, together with a quantity of yeast so small as not to interfere with the disinfectant action of the hydrochloric acid. He found that the addition to this mixture of 7 or 8 per cent. of sodium chloride was sufficient to give rise to very active fermentation.

In a normal acid solution (.1 per cent. of free and .06 per cent. of combined hydrochloric acid) the same result was obtained by the addition of from .8 to 3.5 per cent. of sodium chloride.

The hyperacid mixture contained .06 per cent. of free and .24 of combined, or .24 per cent. of free and .06 per cent. of combined, acid. In the former case, 7 or 8 per cent. of sodium chloride determined active fermentation, though there was no trace of fermentation before, owing to the small quantity of yeast employed, in the latter case sodium chloride exerted no favorable action on fermentation, even checking it when it had been determined by the use of a sufficiently large quantity of yeast to neutralize the disinfectant action of the hydrochloric acid.

Identical results were obtained from another series of experiments with natural gastric juice.

The therapeutic deductions to be drawn from these researches are of the highest importance. They show, in fact, that sodium chloride may be administered with the object in view of combating gastric fermentation, but only on condition that the dose of salt be calculated with strict reference to the degree of acidity of the contents of the stomach. If the gastric juice is hyperacid, a 10- or 15 per-cent. solution of sodium chloride must be employed. Such a solution, however, is so strong as to be liable to determine ill-effects, but the difficulty may be overcome by remembering that sodium chloride increases the action of certain antiseptics, such as alcohol and salicylic acid, so that a smaller quantity of salt may be administered with equally good results if mixed with these substances.

The fact that active fermentation is developed by sodium chloride in a solution of grape sugar, containing a quantity of yeast which of itself is insufficient to decompose the sugar is of the highest importance from a bacteriological point of view.

Interesting as the above observations are, we must not be too hasty in forming the conclusion that the reactions will always be the same in the living stomach that they are in a flask, even though it be in an autoclave. Anything that adds to the precision with which this valuable agent is employed must be regarded as a distinct advance in therapeutics.

It is interesting to note that Huchard (*Journal des Praticiens—Therapeutic Gazette*, August, 1895) arrives at nearly similar results based upon clinical observations. He considers that this acid is capable of exercising a double action upon the digestion—an enpeptic action and an antiseptic action. As an enpeptic, it should be employed in hypochloric cases, in chronic gastritis, in cancer of the stomach, in pyrexias, in pulmonary tuberculosis, in a word, in all cases in which the digestive power is diminished and the amount of gastric juice is lessened. The following is the method of administration

℞ Hydrochloric acid ..	15 minims
Distilled water	8 fluidounces
M A wineglassful toward the end of each meal and one half hour after	

Or,

℞ Hydrochloric acid	45 minims
Distilled water..	9¼ fluidounces
M A tablespoonful in half a glass of warm or cold water at the end of each meal	

The contra-indications to the employment of this drug are all forms of hyperchloride acidity, ulcer (round) of the stomach, and dyspepsias accompanied by hyperesthesia. The treatment should not be continued for more than three weeks or a month, to be resumed, if necessary, after a remission of fifteen days. As an antiseptic it has produced good results in cases of fermentation with pyrosis due to the formation of organic acids, in dilatation of the stomach, etc. It should be given in these cases two or three hours after the meal.

On the Treatment of Tetanus —

Professor Berger (*Medical Week*, December, 1895) reports on four cases of tetanus brought before the Academy by Dr. Le Roy des Barres in 1894 (*Medical Week*, 1894, p. 406).

The first case was a typical example of cephalic tetanus, the course of which, briefly stated, was as follows. A small wound on the face made by a pebble was followed within four days by trismus and a beginning of paralysis of the corresponding side of the face, this paralysis increased and the tetanus became generalized in a week, death supervening on the sixteenth day after the accident. This case is similar to other cases of tetanus recorded by Rose, Gosselin, Terrillon, Réclus, Villar, Charvot, and others.

Another case was that of a mattress-maker who contracted fatal tetanus in [making-over a mattress used by a tetanic patient, who was then convalescent. She had at the time a small wound on the

foot, caused by a nail in the shoe. It is probable that in this case the tetanus was conveyed from the first to the second patient, though it is impossible to prove that this was actually the case.

The third patient was a workman who was caught by a machine belt and sustained several simple fractures, also various superficial contused wounds. The issue was fatal, in spite of injections of antitoxic serum. In this connection it may be recalled that on two occasions Professor Bever has called the attention of the Academy to the almost invariable failure in France of the Tizzoni-Cattani method of treatment, which is in marked contrast to the success of this treatment reported from Italy, Germany, and especially England. So far, the only success obtained in Paris from injections of serum has been in cases of comparatively benign chronic tetanus.

The last case reported by Dr. des Barres is an argument against abandoning local treatment, particularly amputation, to which more than one tetanic patient owes his life. The patient in this case was a boy who developed grave tetanus twelve days after a contused wound of the finger. On the following day the finger was amputated. The patient recovered.

In 1892 and 1893, Berger reported to the Academy similar cases, showing that amputation places a patient suffering from tetanus in the best possible condition for recovery. In cases in which amputation can be performed without too extensive mutilation, it should be resorted to as promptly as possible. When there is a doubt as to the expediency of amputation in a serious traumatic lesion, the appearance of tetanic symptoms tips the scale in favor of intervention.

A Clinical Study of Trional —

Galliard, in a paper read before the Academy of Medicine, Paris (*Medical and Surgical Reporter*, Oct. 19, 1895), states that he has employed this drug in forty cases of sleeplessness, in all but one of which it was administered by the mouth in single doses of fifteen grains.

A review of these cases shows that only seven patients proved refractory, in the others the effect persisted at least a few hours, or even the entire night.

According to this author, trional has neither antipyretic nor analgesic properties, is incapable of alleviating cough or acting upon night sweats, but is to be regarded as a simple hypnotic especially indicated in ordinary insomnia associated with neurasthenia. In the

majority of cases in which it was prescribed it proved of service, and it was found physiologically compatible with other remedies administered at the same time, and not liable to cause serious complications. In the majority of cases no after-effects were noticed, the awakening being agreeable. In a few instances there was a feeling of emptiness in the head, vertigo, and slight nausea. The drug was not found to influence the circulation even in cardiac cases. The respiratory and digestive tracts were not affected.

According to Morro, trional is completely decomposed in the organism, and therefore does not appear in the urine in the same manner as sulphonal. Schaumann says that trional has no influence upon the metabolism of the tissues and, unlike chloral, does not destroy albuminous substances.

The author's conclusion is that trional in doses of fifteen grains is innocuous and serviceable in insomnia due to various causes. As it is but slightly soluble in warm water, it is best given in wafers, the administration being followed by a cupful of warm fluid in order to accelerate its hypnotic effect.

As to whether trional is to be preferred to sulphonal, the author states that the hypnotic effect of the latter is often slow, while trional has the advantage in the majority of cases of producing sleep at the end of twenty to twenty-five minutes, and sometimes in even a shorter time.

Treatment of Chronic Malaria by Ingestion of Ox-spleen and Bone-marrow —

Dr. Critzmann (*Medical Week*, December, 1895) states that four malaria patients under his care were successfully treated by the administration of ox-spleen mixed with bone-marrow. The patients ingested daily 50 Gm of minced ox-spleen mixed with the yolk of an egg, and 10 Gm of bone-marrow from the same animal. After this treatment had been continued for a fortnight or a month, there was marked improvement in the general condition, the patients recovered their appetite, and the intervals between the attacks were considerably lengthened. The emaciation, palpitation, peri-malleolar edema, in short all signs of malarial cachexia, disappeared.

Although the cases reported are few in number, the favorable result obtained permits of hoping that, like pachydermic cachexia, acromegaly, and certain infectious diseases, the symptoms of malaria may be amenable to treatment by a therapeutic agent of animal origin.

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN, A.M. M.D.

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Professor of Gynecology in the Post-Graduate Medical School, etc.

The Production of Artificial Abscess in the Treatment of Puerperal Infection —

In the *Revue Méd. Chir. des Maladies des Femmes* for December, 1895 is given a brief description of this method, advocated by M. Fouchier (Lyons), who produces artificial abscesses in the inferior extremities, with the hope that they may exercise the same favorable influence on the course of the disease which he has observed in the clinic quite often to follow the formation of one or more abscesses in the natural development of the infection process—the *abscess critiques* of old authors.

In commenting upon the procedure, M. Jules Bataud says: "In our opinion the treatment for puerperal infection consists, before and above all, in the disinfection of the uterus by curettage, since intra uterine injections have proven inadequate. Nevertheless, when recovery is unduly prolonged, and when local therapeutics have failed, there is demand for intervention. Then, perhaps, it may be proper to resort to M. Fouchier's method."

Three illustrative cases are reported by M. Switalsky (*Therap. Woch.*)

Case 1—Multipara, aged 20 years. Accouchement normal. On the fourth day chills and fever presented, with the characteristic symptoms of pyemia, which persisted forty nine days. Staphylococci were found in the blood. All the usual modes of treatment failed, and, the patient growing steadily worse on the fortieth day after delivery an injection of two grammes of essence of terebinth was given in the calf of the left leg. The pain was quite severe for forty eight hours, and persisted, though less acute, until the formation of the abscess. Ten days after the injection the abscess, a very extensive one, was incised, and gave vent to about 300 grammes of yellow pus thick and carrying flakes of necrosed tissue. After the injection the patient had no more chills, but the fever persisted until the opening of the abscess. The recovery from that moment was uninterrupted.

Case 2—Primipara, 28 years of age. Difficult labor with manual extraction of placenta. On the following day fever supervened with dry tongue and delirium. Injection of terebinth on the

third day Three days after the cerebral trouble had disappeared, and the fever left on the tenth day, but the fluctuation and other symptoms remained unchanged for three weeks, the abscess was not opened until the thirty-fourth day Rapid recovery followed Although the infection in this case was very grave, beyond the injection of terebinth no remedy was exhibited except an intravenous injection of sublimate, eight milligrammes in three days

Case 3 — This case was similar to the last Fluctuation fifteen days after the injection After the incision the patient improved rapidly

In all these cases the injection caused, for a day or two, excessive pain, and in the first and last case the abscess developed great heat The second, however, partook more of the nature of a cold abscess It is evident, also, in every case that only the injecting of terebinth saved the patient, because the injection of sublimate, administered to the second patient, had no effect upon the infection, and in the other cases no sublimate was exhibited

Extra-peritoneal Lipoma —

The rather unusual features of this case are reported by Dr W H Wathen in the *Southern Medical Record* for January, 1896 The patient was a large woman, and the abdomen very fat An operation was advised and accepted With one stroke of the scalpel the tumor was exposed, and was found to be a solid growth, extra-peritoneal, and easily enucleated When the tumor was taken away, there was no opening in the peritoneal cavity, no pedicle to ligate, and no hemorrhage The tumor has the appearance of being an enlarged kidney, but the author was unable to determine the character of the growth unless it be subperitoneal lipoma, which is sometimes found in the abdominal walls of fat women Possibly it may be a sarcoma, but a sarcoma could hardly have been so well defined and so easily separated from adjacent structures Dr H H Koehler has made sections of the tumor for microscopical examination There is no reason why there should have been any shock, and there was none, the woman continued in a normal condition, with pulse 65 to 70, and no elevation of temperature Bowels moved regularly, and she ate and slept well for five days On Tuesday afternoon, six days after the operation, she was lying on her side, talking to her daughter, she suddenly turned on her back, and in an instant it was evident that the heart's action had nearly stopped Dr Wathen reached her fifteen minutes later and found her nearly pulseless, with cold clammy perspiration, and severe pain in the

region of the heart. Under the use of heart stimulants she rallied, the pulse becoming 115 to 120 to the minute and of very good volume. She then told him that she had suffered such "spells" on many previous occasions. He left her, giving instructions to the nurse what to do in case there was a recurrence of the trouble. She continued in good condition for perhaps thirty minutes, and then, the nurse reports, within less than half a minute she was dead. No post mortem examination was made.

It seems that this patient had suffered for a number of years from some form of organic heart trouble, although Dr. Guest, who administered the chloroform, examined her heart and did not detect any serious trouble. There was no trouble from the anesthesia, the pulse was of good volume throughout the operation and remained so for five days afterward.

Total Extirpation of Uterus and Vagina in an Infant Aged Nine Months —

At a recent meeting of the Berlin Obstetrical and Gynecological Society, Herr Hollander, a guest, reported this interesting observation (*Centralblatt für Gyn*, No. 5, 1896). The patient, a child of nine months, presented a diseased condition of the genital organs described as polypoid clusters on the left wall of the vagina, extending from the portio to and including the cervix. A small portion, removed for microscopical examination, was found to contain round cell sarcomatous tissue and spindle-cells, no muscle elements were demonstrable. Extirpation under chloroform was performed by Professor Isreal, the healthy tubes being removed with the uterus. The child recovered.

PEDIATRICS

UNDER THE CHARGE OF W. S. CHRISTOPHER, M. D.,

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Typhoid Fever in Childhood —

J. L. Morse (*Boston Medical and Surgical Journal*, Feb. 27, 1896) gives an analysis of 284 cases admitted to the Boston City Hospital within a period of thirteen years. In this time 3680 cases of typhoid were admitted, thus giving a percentage of 7.7 for children, which agrees with Osler's Montreal statistics. That typhoid is not infrequent in childhood is still more strikingly shown in the experience of Baginsky. He was able to watch carefully an epidemic of typhoid in a village of 800 inhabitants, out of a total of 50

cases, 16, or 32 per cent, were in children under ten. In the recent epidemic at Stamford, Conn., reported by Schavoir, 194, or 48 per cent of the 406 cases, occurred in children under fifteen years, and 68, or 17 per cent, in children under five years. In that at Plumstead, reported by Davies, of the total of 177 cases, 28, or 16 per cent, occurred in children under five years, and 41, or 23 per cent, in children between five and ten.

From a careful study of his own material and that of others, the author comes to the following conclusions. Typhoid is a common disease in childhood, but rare under two years. It occurs about as frequently in children between five and ten as in those between ten and fifteen. The mortality in cases under fifteen is about 6 per cent, or half that in adults. The rate of mortality increases directly with the age. The course is shorter and less severe than in adults, this, as well as the low mortality, being due to the slight intensity of the intestinal lesions. The severity increases directly with the age. The onset is acute in about one-third of the cases in the second five years, and in about one-fifth of those in the third five years. Nose-bleed occurs in about 50 per cent of all cases, and is often severe. The average duration of the fever is a little less than three weeks, being somewhat shorter in younger than in older children. The proportion of cases in which the duration is not more than ten days is twice as great in children under ten as in those over ten. The temperature curve is less typical than in adults. The remittent second stage is absent in more than 50 per cent of the cases under ten and in 40 per cent of those between ten and fifteen. Relapses are nearly as frequent in children as in adults, and follow the same course. The tongue is rarely as dry as in adults. Vomiting is a common initial symptom and is not very infrequent during the course of the disease, it is not an unfavorable symptom. Constipation is more common than diarrhea, especially in younger children. Distention is present in from 50 to 70 per cent of all cases, and is more common in younger children, it is not infrequently extreme. Tenderness is present in about half of the cases, but is rarely very marked. Hemorrhage is very rare under ten years and much less common above that age than in adult life, it is fatal in about half of the cases. Perforation is extremely uncommon. Rose-spots are present in from 60 per cent to 70 per cent of all cases. The spleen can be demonstrated clinically to be enlarged in from 80 per cent to 90 per cent of all cases. This enlargement is usually moderate but may be extreme, more commonly in young children. Clinical bronchitis occurs in about 40 per cent of all

cases in some cases it may mask the abdominal symptoms, especially in younger children. Other pulmonary complications are rare. Headache is complained of in about 75 per cent of all cases, but is rarely severe. Marked nervous symptoms occur in at least 25 per cent and are equally common at all ages, the condition is one of stupor in from 15 per cent to 25 per cent, and of delirium in the remainder, the delirium is more commonly active. Crying out at night is common, especially in young children. Meningeal symptoms are not infrequent and are more common in young subjects. Neuritis occurs, probably more often than is supposed. Albuminuria is common and occurs with equal frequency at all ages. Serious renal complications are rare, especially in young children.

The value of this study is amply attested by the considerable variation noted in the standard text books, not only regarding the general subject, but in respect to many of its details.

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.,

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Diphtheritic Paralysis —

Dr Goodall (*Brain*, 1895 parts 2 and 3, p 282) has contributed a most valuable statistical paper on this subject, his material being greater and more carefully observed than that of any other observer with whom we are acquainted. It embraces 1071 cases of primary diphtheria (i.e., not secondary to scarlet fever, measles, etc.), furnished principally by the lower and lower middle classes of East London, all observed within two years—1892-3. All patients, except some adults, were under observation for at least six weeks, 11.6 per cent of the total number developed some form of diphtheritic paralysis, but "it is to be remembered that in diphtheria death due to the attack itself takes place fairly early—'before,' to employ Roger's expression, 'the patient has time to become paralytic' hence a fairer estimate of the frequency of occurrence of paralysis will be obtained if the fatal cases (less, of course, those fatal during paralysis) be subtracted from the total, and the incidence be calculated upon the remainder. There were 362 such fatal cases so that 709 patients survived to run the risk of becoming paralytic. 125 were so affected—an incidence of 17.6 per cent—rather more, we think, than most physicians would suppose. Males

(18.6 per cent) were rather more prone to paralysis than females (16.9 per cent), and it was found, contrary to the general belief, that the younger subjects furnished the larger percentage of paralysis. We quote

"The fairest way to get at the incidence of paralysis is, as has been before stated, to subtract from the total cases of diphtheria all those that prove fatal without paralysis. If this be done, we have 436 cases under ten years of age, of whom 96 became paralyzed, or 22 per cent, between ten and twenty years of age, 165 cases, of whom 25 became paralyzed, or 15.1 per cent, above twenty years of age, 108 cases, of whom four became paralyzed, or 3.7 per cent.

"In 101 of the cases the date of commencement of the attack of diphtheria is definitely stated, as well as the date of the first appearance of paralytic symptoms. I find that the seventh is the earliest day upon which such symptoms have been observed, and the forty-ninth is the latest,"—the greatest number occurring during the second, third, or fourth week.

The paralysis first showed itself in the soft palate in eight-three cases, in the ciliary muscle in twenty cases, in palate and ciliary muscle in five, palate and lower extremities four, lower extremities three, pharyngeal muscles and respiratory muscles two each. The disease first appeared once in each of the following: palate and upper extremities, ciliary muscle and lower extremities, pharynx and lower extremities, ocular muscles and lower extremities, trunk and neck, trunk and extremities. It will thus be seen that the palate alone or in combination was first affected in 74.4 per cent of the cases. In 52.8 per cent of the cases the paralysis remained limited, and it is likely that a few cases limited to the ciliary muscles were overlooked in very young children. We consider it worthy of note that the laryngeal muscles were affected in eleven cases (or more), and the external ocular muscles in twenty-six, the external rectus being attacked by far the most frequently. In no case was the internal rectus affected and the external not. In ten cases there was paralysis of the diaphragm, more or less marked (four fatal), in eleven cases paralysis of adductors, and in three (probably) of abductors, of the vocal cords. In four cases the respiratory rhythm was altered, and two of these were fatal. Sensory disturbances were not frequent, but are believed by the author to be less rare than is generally supposed.

The following case is interesting as showing at first the almost purely sensory type of peripheral neuritis, with motor symptoms added later. The man, aged 28, had faucial and nasal diphtheria

for about two weeks, with considerable albumin in the urine. August 2 (twenty four days from the onset) paralysis first showed itself in an inability to read small print. "On that date the knee jerks were brisk. The next day there was a feeling of numbness in the tongue, which lasted for about a week. Towards the end of the third week in August other sensory and motor disturbances appeared, which progressed during the fortnight." On September 8 the following note was made: "During the past fortnight the patient has complained of weakness and numbness of the left arm. To-day there is a marked deficiency in the power of the muscles of the left forearm and hand, also slight deficiency in the muscles of the upper arm. The power of the left little finger is very weak, that of the ring finger less so, and still less that of the remaining fingers and the thumb, but the muscles of all these digits are decidedly weak when compared with those of the right side. There is loss of common sensation on the palmar aspect of the left little and ring fingers, and this condition extends up on to the corresponding part of the arm and forearm. On the dorsal aspect sensation is only impaired. Both knee jerks are present. There is no weakness of the lower extremities. The elbow and wrist jerks on each side are present but feeble. No anesthesia of right upper or of lower extremities, no motor paralysis of right arm. He can read J 4. The patient has, in fact, slight ciliary paralysis and partial left brachial monoplegia."

"During the next few days the ciliary paralysis disappeared, but the right upper extremity became partially paralyzed and the man complained of numbness of the feet. On September 20 it was noted that the knee jerks were absent and his gait was ataxic. He complained of pain in the legs below the knee, especially at night. There was still numbness of the feet. The grasp of the right hand was very weak, that of the left *nil*. The patient then gradually improved, and left the hospital well on October 23."

Of the 125 cases seventeen were fatal, and in thirteen of these death could be attributed to the paralysis, the fatal termination occurring from twenty nine to sixty two days after the onset of the diphtheria and from the third to the thirty fourth day of the paralysis. In none of the patients who recovered was there any permanent paralysis. There was no intermediate result between death and recovery."

It is commonly taught (Gowers, Landouzy, Meigs and Pepper, Sachs, Grasset, Oppenheim) that the severity of the diphtheria has little to do with the occurrence of paralysis, and Henoch even states

that the latter is more frequent after mild attacks To this Goodall takes vigorous exception, but does not, we think, make out a very strong case, as shown by the following figures In 21 6 per cent of the cases of paralysis there had been little or no local exudation, in 36 per cent a moderate amount, and in 42 4 per cent there had been much, that is, in over half the cases there had been no or little or only moderate local disease There were twenty-two severe cases of paralysis (thirteen fatal), and in ten of these (about 45 per cent) there was much albumin in the urine, and in twelve a faint trace or a moderate amount But here, indeed, is the strongest evidence that the severity, that is the degree of toxemia, of the disease bears some relation to the frequency of paralysis Of the 1071 cases of diphtheria, only about 30 per cent showed albumin in the urine, while of the 125 cases of paralysis 88 per cent had a transient or more enduring albuminuria Further, as stated, of the twenty-two cases of severe paralysis, none were entirely free from albuminuria, while of forty-three mild cases eight had at no time albumin in the urine, seven on one occasion only, and only eight had much Although the author compels conviction that paralysis does not follow mild and severe diphtheria with *equal* frequency, yet his statistics would seem to show conclusively that there are other important etiological factors at work besides that which we can designate severity of the disease We give very briefly the following case from among a number which are given in detail, as showing to what extent paralysis may progress and the patient still recover

M—, aged three, sore throat June 7, membrane had cleared off by June 18, varying degree of albuminuria June 21, pulse 108 and irregular, and next day paralysis of the soft palate During the first week in July the legs became affected, and by the 8th the child was paraplegic with abolished knee-jerks On the 18th there was inability to swallow, and the heart was irregular On the 25th he was unable to turn himself in bed or lift the head from the pillow By July 26 the diaphragm was affected and there was inability to cough Both external recti then became paralyzed, the pulse was 130, respiration 30, and the patient could only make attempts to talk—he could scarcely make a sound, and each syllable required a separate effort August 5 it was noted that saliva dribbled from the mouth After that date he rapidly improved, and was discharged cured September 20

The author, very properly, makes a distinction between cases which die from cardiac failure due to degeneration of heart muscle, and those which die from paralysis of essentially nervous origin

A New Type of Crossed Hemiplegia —

Anna Goukovski (*Nouv Icon de la Salp* 1895, p 178, *L Union Médicale*, Oct 5, 1895) says two kinds of crossed or alternate paralysis have been known for a long time—that due to a one-sided lesion in the lower part of the pons causing facial paralysis on the same side and hemiplegia on the other, and that due to a lesion of one crus cerebri, producing paralysis of the motor oculi on the side of the lesion and of the face and extremities on the opposite side. The author now describes a third type, in which the tongue (hypoglossus) is paralyzed on one side and the extremities on the other. A man of 60 had a paralytic stroke without loss of consciousness. An examination showed a right hemiplegia, the face being free and no aphasia present. There was paralysis and atrophy of the left half of the tongue with deviation towards the same side. Professor Revlilod made a diagnosis of a focus of softening above the pyramidal crossing and between the olive and pyramid, which diagnosis was confirmed eleven days later by the autopsy, which disclosed an obliterating endarteritis with softening of the superior part of the left pyramid, involving the hypoglossus roots, which were degenerated. It may be noted that the descending degeneration of the pyramidal tract could be followed to the lumbar enlargement, although the lesion was only eleven days old.

LARYNGOLOGY AND OTOTOLOGY

UNDER THE CHARGE OF W. E. CASSELBERRY, M.D.

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The Modicum of Hearing of Deaf Mutes —

S. T. Walker, Superintendent of the Illinois Institution for the Deaf (*Medical Fortnightly*, March 2, 1896) says an electrical instrument called the audiometer was employed to measure accurately the hearing of a large number of so-called deaf mutes in the asylum, in order to discover what percentage would have such a modicum of hearing that education might possibly proceed through this sense. Nearly 11 per cent of all examined recorded an audiometric hearing power of 30 per cent and over of normal hearing. At that rate, there should be in the Illinois Institution for the Deaf nearly sixty pupils who have 30 per cent and over of hearing. With this should be compared the fact that many adults are able to transact business and take part in the ordinary course of affairs, aided by trumpets who have only 7 per cent and upwards of hearing power. Were

this statement to stand without further comment, the natural conclusion would be that in all these children the sense of hearing might be successfully employed for educational purposes, but children partially deaf do not and will not, excepting in rare instances, put forth the exertion needful to utilize and educate the modicum of hearing they possess, while, on the other hand, adults, having a keener appreciation of the importance of the subject, put forth the utmost exertion

In a New York institution, about 5 per cent are found to be capable of instruction through the ear. In Nebraska an effort is made to instruct 34 per cent of the whole number. The first effort in this direction in Illinois was made in 1894, and a class was formed (the number not stated) the pupils of which from that time to the present have been compelled to depend upon the ear for instruction, and required to communicate by vocal speech only. The experiment has been most gratifying. The work is exceedingly taxing to the teacher, who must materially increase the volume of vocal speech so as to meet the requirements of the deafest member of the class. Yet this great strain will ultimately be lessened by means of the graphophone, experiments to that end being now prosecuted. The way in which this instrument is used is by the teacher recording upon a blank cylinder such lessons, exercises or recitations as she may desire most frequently to fall upon the ears of her pupils. These cylinders can then at her pleasure be placed in the machine, and as many as eleven pupils can, by using the multiple hearing attachment, hear over and over the record of the cylinder. The graphophone, it must be understood, has much greater volume than the phonograph, and the person making the record can secure a reproduction that may be heard by normal hearing in any part of a large room.

Spring Catarrh —

In the October (1895) number of the *Archives of Ophthalmology* the reviewer called attention to the frequent limitation of the lesions of spring catarrh to the conjunctiva of the upper eyelid. This location, described in the first place by the reviewer in 1886, and later by Emmert and others, has received but scant mention in literature, yet it is not a rare condition and deserves attention, as the inexperienced physician may mistake it for trachoma. The characteristic lesions of spring catarrh consist of the circumcorneal tumefaction. This may exist alone or, more commonly, together with the changes in the conjunctiva, to be mentioned presently, or,

as in the cases reported by the reviewer, the changes in the conjunctiva of the upper lid alone may be found. The lesions vary from a slight velvety appearance to a decided papillary hypertrophy, often with opacity of the surface. It is characteristic of them that they annoy the patient only during the summer season (by irritability, watering, and asthenopic symptoms). As a rule both the symptoms and the lesions disappear during the cold season, although sometimes the changes in the conjunctiva do not recede entirely during winter. The disease has an indefinite course, may last for years or cease after some seasons but leads to no complications. It depends largely on climatic influences, and the patient can escape the summer annoyances by passing the season in any region immune against hay fever. No absolutely curative treatment has yet been found. In several of the reviewer's cases, considerable relief was obtained by squeezing the papillary excrescences between roller forceps, as is customary in trachoma.

During the receding stage of the disease, applications of nitrate of silver hasten the recovery materially, during the height of the disease they only mitigate the severity.

In the *Annals of Ophthalmology and Otology*, January, 1896, C H May discusses the occurrence of mixed forms of trachoma and spring catarrh. He describes six instances in which the diagnosis of spring catarrh was based on the existence of the characteristic circumcorneal tumefaction as well as the papillary hypertrophy of the conjunctiva of the upper lid occurring during the warm season. But in these patients the conjunctival lesions did not disappear during the winter, while the circumcorneal swelling had subsided; the subjective annoyance was much less in winter, however, than in the warm season. These cases are interpreted by Dr May as a coexistence of spring catarrh with trachoma. His description, however, does not enable the reader to confirm the diagnosis with any certainty. In three of them he speaks of pannus. Since genuine spring catarrh does not lead to involvement of the cornea the diagnosis might be decided by the existence of the pannus, were it not for the qualification which the author applies in speaking of "a narrow crescent of pannus." This condition is not an uncommon one in genuine spring catarrh, and is not of a progressive character, hence the conclusions of the author are not convincing. A valuable lesson, however, to be drawn from his paper is that if the granular appearance of the conjunctiva persists during winter be it the spring-catarrh lesions or additional trachoma the treatment with blue stone may prove of decided service, as shown by his six cases.

A Rare Form of Juvenile Huskiness —

Castex (*Journal of Laryngology, Rhinology, and Otology*, December, 1895), among various items cited, refers to a condition of the larynx in young children in which the chief symptom is vocal raucity, or a peculiar huskiness of the voice. He has been unable to assign any cause for this condition. It is not necessarily associated with adenoid vegetations or nasal stenosis, occurs in subjects who are free from enlargement of the tonsils, and is apparently due to a simple primary chronic inflammation of the larynx. The vocal cords, although remaining white, seem thickened and bulged out towards the median portion of their inner edge. Anti-scrofulous treatment was followed by no result.

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF W. I. BAUM, M.D.,

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The Treatment of Hemorrhages and Urticarias which are Associated with Deficient Blood-coagulability

Dr. A. E. Wright, of Dublin (*London Lancet*, Jan. 18, 1896), directs attention to the fact that the coagulability of the blood can be increased by calcium salts, by carbonic acid, and by solutions of cell nucleo-albumins.

The following cases show the increase of blood-coagulability which can be obtained in hemophilia by the internal administration of calcium chloride.

Patient	Age	Date of antecedent blood-examination	Coagulation time in standard tube (temp 18.5° C.)	Amount of Ca Cl ₂ administered.	Date of subsequent blood examination	Coagulation time in standard tube (temp 18.5° C.)
Boy (very severe hemophilia)	9 yrs	April 13, 1894	Exceeds 54 minutes	Two 2-Gm doses	April 14, 1894	25 minutes
				Two 2-Gm doses	April 15, 1894	13 ¹⁴ minutes.
		Sept. 28, 1894	14 minutes	Two 0.6-Gm doses	Sept. 29, 1894	6 ³⁴ minutes
Brother of above (less severe hemophilia)	7 yrs	April 13, 1894	7 minutes	Two 2 Gm doses	April 14, 1894	4 minutes
		Sept. 28, 1894	9 ¹⁴ minutes	One 0.6-Gm dose	Sept. 29, 1894	5 ¹⁴ minutes

It will be noted that the augmentation of coagulability here recorded was not in either case a permanent one. In these, as in all other cases of hemophilia which had come under the author's

observation, a continued administration of 20- to 30-grain doses of calcium chloride resulted in a diminution of coagulability below the normal. There is evidently in the hemophilic, just as there is in the normal patient, a maximum of lime addition which ought not to be exceeded. For the arrest of hemorrhage this subsequent diminution of coagulability may generally be left out of account, for when the maximum of coagulability is reached hemorrhage will generally be arrested by the sealing of the wound by clot. Dr Wright has seen this result follow upon the internal administration of calcium chloride in several cases of hemophilic hemorrhage. The less soluble calcium salts may also be usefully applied in the form of local applications to the bleeding surfaces. He has obtained very satisfactory results from the application of finely powdered chalk, mixed into a paste with a $\frac{1}{2}$ per cent solution of calcium chloride.

Cases of urticaria which result from eating unripe or acid fruit may be attributed to a diminution of blood coagulability due to the abstraction of calcium salts from the blood by the vegetable acids. Again, the urticaria which supervenes upon the eating of certain mollusks and crustaceans is if one may judge by the analogy of what happens in animals, associated with a diminution of blood coagulability. There is yet another example of the association of diminished blood coagulability with urticaria in the case of the urticarious eruption which occasionally occurs in dogs whose blood has been deprived of its coagulability by an injection of peptone. The author was led by the analogy of these facts to inquire whether the urticaria which frequently supervenes upon an injection of anti-diphtheritic serum is also associated with a diminished blood-coagulability. In the few cases which have come under his personal observation he has found that the blood coagulability is really notably diminished.

A practical point in the treatment of urticaria would appear to result from these considerations. In dealing with an urticaria which is associated with diminished blood coagulability any method of treatment which will augment coagulability will exert a favorable influence upon the course of the eruption. Acting on this assumption, he treated the few cases of post antitoxin urticaria which had come under his notice with 15- to 30 grain doses of calcium chloride and the treatment was apparently very successful. In one typical instance the coagulation time of the patient (who was suffering from acute urticaria) stood at eight minutes, within a few hours after the administration of the calcium chloride it had come down to four minutes and the rash had entirely disappeared. This method of

treatment would appear to deserve investigation at the hands of those who have frequent opportunities of observing this and other forms of urticaria. The treatment of urticaria by carbonic-acid inhalations would hardly appear to be a practical method.

In all cases of urticaria associated with diminished blood-coagulability, it is of the utmost importance to avoid the use of wine, especially the more acid kinds, which diminish blood-coagulability by virtue both of the alcohol and the free citric and tartaric acids they contain, which abstract lime salts from the blood. In a case which came under the author's observation incidentally, even the smallest quantity of any wine, except port, produced a slight edema of the fingers and an urticarious eruption. The urticaria in this case was an unregarded incident in a case of incipient tuberculosis which was being treated with creosote. If, however, the urticaria can be referred to a deficiency of lime salts in the blood, it is a therapeutic indication of the utmost importance, for the super-vention of urticaria would be the equivalent of a call for lime.

OPHTHALMOLOGY

UNDER THE CHARGE OF HENRY GRADFELD, CHICAGO

The Mechanism of Accommodation —

The movements concerned in the accommodation of the eye have been described by Helmholtz as a contraction of the ring-shaped portion of the ciliary muscle, whereby the ligament of the lens is relaxed and the lens can follow its elastic tendency and become more convex.

Since the various steps of this mechanism have never been fully demonstrated, doubts have been expressed regarding the accuracy of this explanation. These doubts seem now well dispelled by observations made by C. Hess (*Von Graefe's Archiv für Ophth.*, vol. xlii, part 1). In various eyes on which iridectomy had been performed, it could be seen that on contracting the ciliary muscle by means of eserine, the ciliary processes advanced both toward the cornea and toward the rim of the lens, thereby relaxing the suspensory ligament. Some of the patients were so far advanced in age that the lens itself had lost its elasticity, and in these the approximation of the ciliary processes toward the rim of the lens was all the more apparent.

As an entirely new fact it was learned that this relaxation of the ligament of the lens permitted the lens to tremble during

sudden movements of the eye. The trembling movement could be easily observed by watching the lenticular reflexes with a strong glass, especially if a lens with moderate opacity was chosen. Like observations could be made upon intact eyes. It was also seen in iridectomized eyes that the zonula fibres visible as straight lines during rest became wavy or even invisible after the use of eserine, and that the rim of the lens, which during rest had been slightly crenated, now assumed a more regular but smaller contour.

An Epidemic of Conjunctivitis —

An epidemic of conjunctivitis caused by the pneumococcus has been described by Axenfeld in the *Berliner Klinische Wochenschrift*, February 10, 1896. Twenty five children out of ninety four in a school suffered from the disease, and in all of them the pneumococcus could be found upon the conjunctiva. The course of the disease was mild, never lasting over eight days. The disease was evidently spread by direct contagion, and began, as a rule, with an acute nasal catarrh. Inoculation of the author's own eye with the secretion led to no result.

GENITO-URINARY DISEASES

UNDER THE CHARGE OF G. FRANK LIDSTON, M.D.

Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Chicago College of Physicians and Surgeons.

Castration in Enlargement of Prostate —

Mr Mansell Moullin (*The Lancet*, Nov. 30, 1895) says a great deal of evidence has been collected in the past year or two upon the question of the influence exerted by the testes upon the growth and nutrition of the prostate. Orchotomy for prostatic enlargement has now been performed more than a hundred times and is practically always followed by atrophy of the gland. The wasting does not, it is true, set in with equal rapidity in all cases—in one it is said to have been upwards of a year before there was distinct diminution in size—and the extent to which it is carried varies, depending probably upon structural differences. For while it is well established that both glandular overgrowth and stroma undergo fatty degeneration and disappear, it is not so clear what effect is produced upon true myomata (as distinguished from the common form of localized nodular overgrowth) or upon a gland in which the tissues have already undergone fibroid transformation. But almost without exception whenever a definite result has been recorded, there has

been a more or less conspicuous reduction in size. So far as the enlarged gland is concerned, the evidence is mainly clinical, it is true, but there are three instances in which this has been confirmed by post-mortem examination. One, eighteen days after operation, has been recorded by Griffiths, a second, eleven days later, by the writer, and the third by Professor White, of Philadelphia, the patient having died on the evening of the second day. In the first of these three cases fatty degeneration, followed by disintegration and ultimate disappearance of all the cell elements, epithelial, connective-tissue, and muscular alike, was described. In the second, although there was distinct reduction in size (as shown by the wrinkled state of the mucous membrane), and especially in consistence, no histological change could be made out, the epithelial cells preserved their columnar shape and normal appearance, and there was no evidence of proliferation. In the third the report states that "the stroma of the gland shows beginning proliferation of the connective-tissue cells, but especially of the muscle cells. The acini tubules are also becoming filled with proliferated columnar cells, and here and there some fine granular matter may be seen in the tubules, some of the cells appear to contain fine granules, which have not taken the stain, evidently fat. The changes are typical of beginning atrophy." It is true that there is here a certain amount of discrepancy, the results of the microscopic examination in the writer's case not confirming what was found in the others, although in respect of duration it stands almost midway between them. But no great weight can be attached to this, as it is well known that in the case of the normal prostate, in animals as well as in men, several instances are on record in which atrophic changes have been delayed for a singularly long time after the performance of orchotomy.

The point, however, to which the writer wishes to draw attention, is not so much the ultimate result as the strange and unexpected effect upon micturition that has frequently been noted as occurring within a few hours of the operation, an effect so unexpected that in many of the cases it has been neglected altogether as an unaccountable accident and in others has been received with polite but unmistakable skepticism. Recovery of voluntary power over the bladder is recorded in many instances as having occurred as early as the fifth or sixth day—in several, within a few hours. Sometimes it has been permanent, more frequently, and especially in those instances in which it has been regained within a few hours, it has been lost again for a time, and then, at the end of a week or so, gradually and finally been restored. Several of these cases have

been under the writer's own observation, and he thinks the circumstances under which they have occurred throw a certain amount of light upon the causation. In one case orchotomy was performed for prostatic retention of urine. Undoubtedly this had been immediately occasioned by congestion and edema, but before the operation was performed the patient was kept in bed for a fortnight under the usual treatment suitable to such cases, so that the congestion might have time to subside. During that fortnight there was but little change for the better; the day after the operation it was distinct and marked. More progress had been made in twenty four hours than in the preceding fortnight. In a second in which the most prominent symptom was a most intractable cystitis the patient himself noticed a decided improvement in the size and the strength of the stream on the same evening. In a third case in which the writer was consulted, no urine had been passed, except by catheter, for a considerable time, two hours after the operation urine was passed naturally, and this continued for five days, then retention occurred again and a catheter was required at frequent intervals for about three weeks, when voluntary power began to return once more and this time continued. This latter case is especially significant, for Mr A. Hunt, of Wolverhampton under whose care it was throughout, writes that for some time after the operation the muscles around the anus were exceedingly irritable, so that the finger, when introduced for the purpose of examining the condition of the gland, was tightly gripped, whereas previously the orifice had always been patulous and the patient had suffered from the difficulty of retaining the motions which is so common in cases of prostatic enlargement.

Similar experiences have been noted by other surgeons. In a case recorded by Gavin, in which there was absolute retention the catheter having to be introduced every four hours day and night, voluntary micturition took place eight hours after the operation, the first time for three weeks, the next day the catheter was needed again, the third day it was passed for the last time, micturition thenceforth being entirely voluntary. In another case, under the care of Lilienthal, there was no improvement after six weeks' palliative treatment, twenty four hours after the operation there was slight, but distinct, remission of symptoms, the third day all the improvement was lost, and then on the fifth, it began again and this time continued steadily. Watson records another case of almost complete retention, the patient being only able to void spontaneously an ounce or two of the urine in twenty four hours drop by

drop Palliative measures had been tried without improvement, for five days Orchotomy was performed and all treatment, including the use of the catheter, suspended In the first twenty-four hours, although the bladder filled considerably, it did not become overdistended, and the patient voided at each urination more than he had done previously, and at the end of thirty-six hours the pain and the desire to urinate ceased, so that he could sleep for two hours without being disturbed

Various explanations have been suggested for the rapidity with which this improvement sets in Clearly, even when recovery of the power of voluntary micturition is delayed for so long as a week, it cannot be accounted for by any organic change In spite of the fact that in Professor White's case there was evidence of cell-proliferation, such as precedes atrophy, by the evening of the second day, it must be admitted that no fatty degeneration or absorption can be so speedy as to produce a tangible effect upon the diameter of the prostatic urethra within the space of eight, and still less of two, hours For this reason the writer cannot accept the explanation that has been offered by Professor White, who suggests that the rapidity may be accounted for by changes taking place in a valvular median lobe A little alteration in such a structure might produce noticeable amelioration of obstructive symptoms, but, slight as these changes need be, there is no time for them, and, even if the immediate improvement could be accounted for on this theory, it entirely fails to explain the relapse which, as the writer has shown, so frequently follows within the first few days Organic changes, such as cell-proliferation and the like, are quite out of the question, the only possible explanation for such rapid alterations is to be found in the condition of the circulation through the part The writer does not, however, in the least agree with those who attribute the improvement to the disappearance of congestion and edema under the influence of rest and palliative treatment As he has shown in the above cases, rest and palliative measures had been tried in many of them, if not in all, for days and even for weeks before operation, without producing the least effect

The reduction in size of the enlargement cannot be thus explained No doubt it is due immediately to the diminished amount of blood circulating through the gland, but this diminution is brought about, not by the cessation of congestion, but by the active spasmodic contraction of the walls of the vessels The exciting stimulus is not the removal of the testes, but the sudden ligature of the spermatic plexus of nerves in the cord This is a

factor in the operation the importance of which has apparently not attracted attention. The circulation through the prostate, there is no doubt, is under the control of a part of the nervous system that is directly connected with the testes through the spermatic plexus. Ligature of these nerves causes reflex constriction of the vessels in the prostate, and a corresponding diminution in size. Then later, as the effect passes off the walls of the vessels relax again, the congestion returns, and all the symptoms come back for a while, to disappear finally when the atrophic changes have advanced sufficiently to produce a permanent reduction in size.

Such reflex muscular spasm after operations of this kind is no exceptional phenomenon. As can be well understood, it is not equally manifest in all cases alike, the conditions preceding the operation are in all probability somewhat stringent. Sometimes it affects the walls of the blood vessels entirely or mainly, sometimes it involves other muscles as well. In Mr Hunt's case, for example, the sphincter ani was conspicuously affected, and in one recorded by Hayden, not only this muscle but the compressor urethræ was involved, and there was such severe spasm for twenty-four hours after the operation that a catheter could not be passed, and the bladder had to be aspirated. Fortunately the muscular spasm is rarely so severe or so widely spread as this, but it seems that not infrequently it is sufficiently general to produce a material effect upon the swelling of the mucous membrane that lines the prostatic urethra.

Whether this explanation is correct or not—and it seems to fit in with the ascertained facts and with all of them, much better than any other that has been suggested—the occasional occurrence of immediate improvement after orchotomy usually of a temporary character, with or without spasmodic contraction of the sphincter ani or of the compressor urethræ or of both together, is not a matter that can be questioned.

Electrolysis for the Surgical Treatment of Strictures —

Dr J A Fort (*Pacific Record*, Jan 15 1896) describes an electrolyzer which he says has all the advantages of the urethrotome and none of its inconveniences. It looks like a small whip, of which the handle contains a metallic wire projecting from the end which connects with the flexible part. The instrument, being first introduced into the urethra, is connected with the negative pole of a continuous current battery, the positive pole of which is placed near the affected part, on the front of the thigh or over the pubes and

The lower court, in the trial of the cause, adopted the theory that the attending physician was the agent and representative of the absent one, and consequently the latter was liable for the results of unskillfulness of his proxy. The court of review pronounced this error, holding that each of the physicians was engaged in a distinct and independent occupation of his own, having no business connection with each other save such as might incidentally arise from the one attending the patient of the other. And although, if admitted that the former was employed specially by the latter to attend an individual patient, that fact would not render the regular physician liable for the neglect or want of skill of his substitute, as an examination of authorities shows that one engaging the services of another who pursues a separate and independent vocation of his own is not liable for the negligence or improper acts of the latter.¹—*Chicago Law Journal*

The Maybrick Case —

This celebrated case will probably continue to excite the interest of both the lay and medical public as long as this unfortunate woman is deprived of her liberty. A very large portion of the English and American people either believe her to be innocent of her husband's death, or think the evidence was entirely insufficient to justify conviction.

A recent letter from "A Barrister" in the *New York Medical Journal*, March 21, 1896, is evidently from an English source. The salient points in the case are reviewed, and it is clearly the opinion of the writer that the evidence does not point to arsenic as being the cause of death.

We do not understand the present status of the case in the English Home Office, but it is evident that little is to be gained from the further incarceration of this woman. If there exists indubitable evidence of guilt, it ought to be given to the public, if not, the prisoner should be released, as we doubt the advisability of punishing an individual whom a considerable proportion of the public regard as innocent.

¹Laugher vs Painter, 5 Barn & C 547 Milligan vs Wedge, 4 Perry & D 714 De Forrest vs Wright, 2 Mich 368, Wood, Most & Serot 2 311

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ORIGINAL ARTICLES

AUTO INTOXICATION PRODUCING EPILEPTIFORM CONVULSIONS, HYSTERICAL SPASM IN THE MALE, INTESTINAL OBSTRUC- TION, APPENDICITIS PERITONITIS OPERATION, RECOVERY, RELAPSE IN TYPHOID ¹

DAVID A. HARE, M.D.

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I desire to report these cases because of their peculiar interest both from an etiological and a therapeutic standpoint. The first is that of a clergyman, aged 50, for many years a resident of Texas, where he suffered from a severe attack of yellow fever some years since, after which he was never 'the same man,' although a hard worker and as active as before.

Well nourished and apparently in good physical condition, he had been in the habit for a number of years of taking a large amount of daily exercise, often walking seven to ten miles every day for weeks at a time with the hope that he might be able to overcome the condition about to be described.

Having a tendency to chronic constipation, which usually required a careful and laxative diet and active laxative medicines to overcome it, he hoped that exercise would give him a certain amount of relief. As often as once a week, or even oftener, he has suffered from fullness in the head and some dizziness, with a general feeling of malaise and wretchedness, and during this time it was exceedingly difficult for him to make any effort, mental or physical. At less frequent intervals, varying from a month to six months or more, he has been seized with much more violent attacks in which for several days the symptoms just described would persist, awaking

¹ A paper read before the Philadelphia County Medical Society April 22, 1896.

early in the morning, he would rise from his bed in a semi-delirious condition, and if interfered with was apt to become somewhat violent, there soon appeared a typical epileptiform convulsion, followed by a deep sleep, and a restoration of consciousness exactly similar to that seen in a person emerging from a true epileptiform paroxysm.

There is no history of any specific trouble, of any injury, of sunstroke, or hereditary tendency, although there is a history of marked nervous debility due to overwork at various times during the past twenty years.

Carefully directed treatment for the purpose of overcoming nervous exhaustion and of improving digestion produced very little if any result and the fact that large doses of calomel had on a few occasions seemed to produce temporary improvement suggested to my mind the possibility that the case might be one of auto-intoxication somewhat similar to those described by Brieger and certain French investigators. Acting on this principle, the patient was directed to take a diet as free from fats as possible, and to produce every day—by means of a copious draught of Hunyadi water, taken before breakfast—a semi-formed stool. He was also given at the same time a pill composed of extract of chiretta two grains, leptan drin half a grain, podophyllin one-fifth of a grain, euonymin half a grain, beechwood-creosote half a grain, to be taken three times a day, after meals. During a period of nine months he has not only had no return of his epileptiform manifestations, but has been entirely free from the symptoms of mental and bodily torpor already mentioned, and it would seem evident that by the regulation of the diet, the stimulation of the gastro-duodenal glands and the glands opening into the duodenum, as well as by the use of the purgative, certain processes which had resulted in the development of animal alkaloids in the intestine have been set aside.

The second case was that of a boy, aged 19, of Irish birth, who was confined to bed because of a violent pain in the epigastrium radiating towards the right kidney. He was generally free from the pain during the day until late in the afternoon or in the evening, when it would come on with what he described as frightful intensity so as to be absolutely unbearable. His tongue was heavily furred and his digestion evidently markedly impaired. He did not, however, possess the appearance of a person who suffered severe pain, nor were there any evidences of impaired nutrition or grave disease. On attempting to examine the abdomen it was found that both rectus muscles were in a condition of rigid spasm, and when

they were touched they developed (particularly the one on the left side) a rhythmical contraction which conveyed to the hand an impulse very similar to that produced on deep palpation of the aorta in a person with a thin abdominal wall. The greater the pressure, the greater was the spasmodic response. The number of the contractions was about sixty per minute. On anesthetizing the patient the spasms ceased entirely, long before ordinary muscular relaxation was produced, and deep abdominal palpation failed to reveal anything abnormal in the belly.

Largely for the purpose of producing a mental effect, and also with the hope of producing an impression upon the condition of the stomach, lavage was instituted and this procedure revealed a condition of chronic gastric catarrh with advanced fermentation of the stomach contents and excessive mucus-secretion. Persistence in the use of lavage and antiseptic solutions, and the regulation of the diet, caused entire removal of all the symptoms.

The third case was that of a boy, aged 19, who was taken ill on a Monday night with violent pain in the belly, which lasted continuously until I saw him on Tuesday evening at 9 o'clock. On examining the belly all the physical signs of a general peritonitis were present. The abdominal wall was hard and knotted, but scaphoid and tender on pressure. Pulse 154, respirations 56. The pain was localized in the neighborhood of the diaphragm, there was no increase in tenderness in the right iliac fossa, nor indeed could any excessively tender spot be found anywhere in the belly. The bowels were obstinately confined. The urine was secreted in fair quantity, but there was difficulty in passing it owing to the pain produced thereby. A careful rectal examination showed possible tenderness in the right iliac fossa, but this symptom was not sufficiently marked to make a diagnosis of appendicitis justifiable. There was no history of a previous attack of appendicitis, but the patient stated that six months before he had had a violent pain in his side which his physician had called "rheumatism."

As it was evident from his condition that under medicinal treatment death could not be long delayed, a surgical operation was strongly advised after consultation with Dr. Keen. The patient was at once removed to the Jefferson Medical College Hospital and at midnight was operated upon by Dr. J. Chalmers Da Costa.

Examination of his heart prior to the operation revealed an exceptionally loud aortic obstruction murmur. As there were no symptoms indicating localized trouble in any portion of the peri-

the rectum, the anterior with the vagina and bladder Fig 8 shows the condition after fusion The development of the external organs, therefore, consists in the formation of the clitoris, labia, etc , and the fusion of the external skin with the lower portion of Mueller's

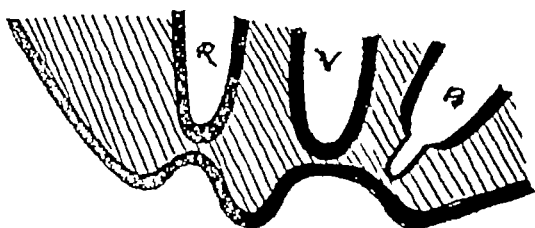


FIG 7—Depression divided R, rectum V, vagina
B, bladder

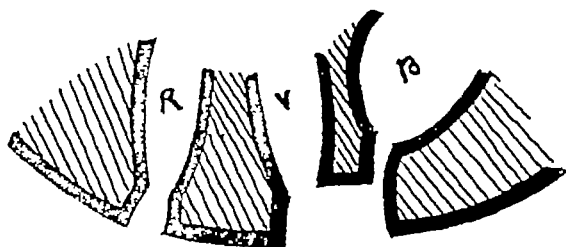


FIG 8—Condition after normal external fusion
R, rectum V, vagina B, bladder

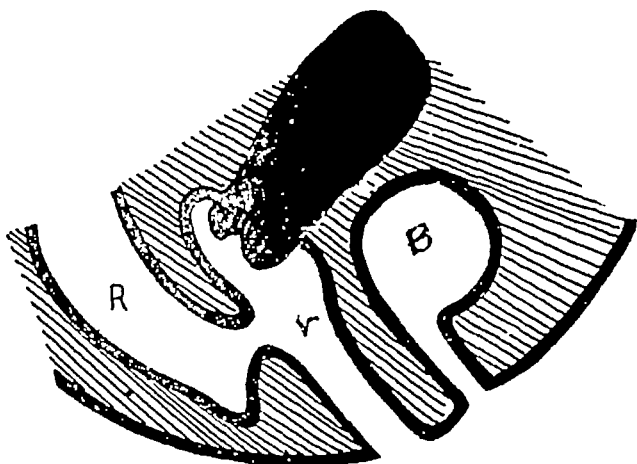


FIG 9—Recto-vaginal communication Failure of depression
at anus R, rectum V, vagina B, bladder

ducts It can now be readily understood how complete atresia can take place—that is, where there is no effort at all toward fusion between the external skin and the internal organs,—or how the vagina and rectum may have a common opening, due to a failure of division of the depression, so that the vagina may empty into the rectum or *vice versa* (See Figs 9 and 10) The term *atresia anti-*

vaginalis, a misnomer, is usually understood as this condition. Similar changes may take place in connection with the development of the urethra and bladder. (See Figs 11 and 12.) The depression

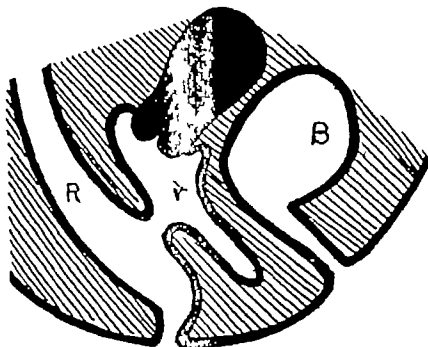


FIG 10.—Vagino-rectal communication. Imperforate introitus vagina. *R* rectum. *V* vagina. *B* bladder.

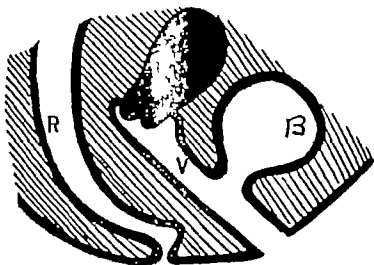


FIG 11.—Vesico-vaginal communication. *R* rectum. *V* vagina. *B* bladder.

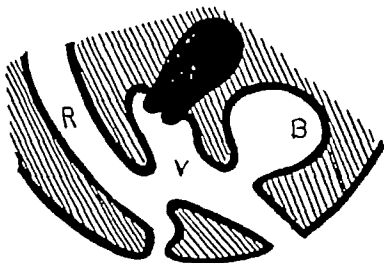


FIG 12.—Vesico-vagino-rectal communication. *R* rectum. *V* vagina. *B* bladder.

may take place in an abnormal position, though this is rarely the case (Fig 13) It is my object to confine myself to the forms of vaginal atresia, and I will therefore exclude all others

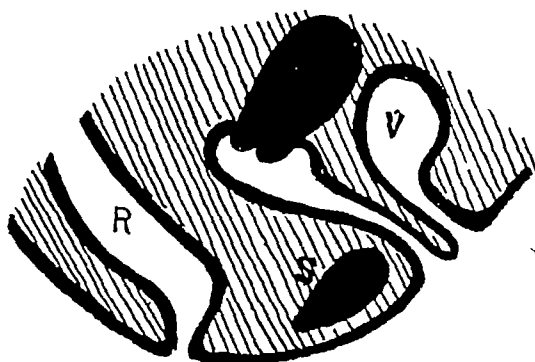


FIG 13—Supra pubic depression S, symphysis

Imperforate hymen is the malformation most frequently met with, it is usually congenital, rarely if ever acquired In the normal virgin state the hymen represents a duplicature of the mucous membrane, it is either crescentic forwards, or else diaphragmatic in shape, with a central aperture The normal opening in the hymen varies greatly, it is usually large enough to permit vaginal examination with one finger, though painful, it may, however, be so large that violent coitus or even childbirth will not destroy it, or so small that it is difficult to insert a fine probe The imperforate hymen usually consists of a thin elastic membrane, but may be an extremely tough fibrous structure, even assuming a cartilaginous consistency, it then bears a close resemblance to the external skin and may be mistaken for the next form of atresia which I describe, *ie* imperforate introitus vaginae

Imperforate hymen when under tension—that is, when pressed forward by a hematokolpos or by any retained fluid—appears as a tense tumor of doughy consistency, deep blue in color, bulging into or out of the vestibulum, displacing the frenulum and labia Elasticity is characteristic of hymeneal atresia—all other forms, with the exception of atresia retro-hymenalis, being very much more resistant and showing no tendency to yield under pressure Spontaneous rupture after appearance of menstruation may take place

The operative treatment of this condition is simple, a crucial incision usually being all that is necessary, should there be an excessive amount of membrane, or the hymen be hard and dense, it may be excised The crucial incision should be given the prefer-

VAGINAL STENOSIS AND ATRESIA

tion Vidal and Bockel encircled the margins of the wound with suture after excision, this is rarely necessary

In operating, two dangers have to be contended with, namely rupture of the tubes, and sepsis. The former is only present when hematosalpinx exists, the latter in whatever portion of the genital tract menstrual fluid may be retained. Rupture of the tubes has been repeatedly observed following drainage of a hemato-colpos, the time varying from four hours to ten days after operation, all of the cases terminated fatally, either immediately from shock, or subsequently from peritonitis. When dilated the walls of the tubes become very thin and friable adhesions to the surrounding organs taking place. After evacuation of a hemato-colpos, severe traction is exerted upon the adherent tubes by the contracting vaginal uterus in their effort to assume their normal location. Thus, the direct pressure which is transmitted from the uterus into the tube, when the ostium uterinum is dilated, and the abdominal pressure, favors the occurrence of rupture. This dangerous complication has been so much feared that it has been suggested to dilate the tubes before further operative procedure. Hegar and Kriebach recommended puncture and drainage per rectum, this method should be condemned, the danger of infection being very great. It should also be considered that the tube, usually greatly displaced, is not always accessible from this point. Hausmann proposed drainage of the tube by laparotomy. This method has more to recommend it by establishing adhesions between the tube and the parietal peritoneum, the general peritoneal cavity may be walled off and the blood drained without danger. The adhesions may be favored by means of irritating agents (Hausmann) better I should think by suture or packing. The method of packing used in order to produce adhesions between the abdominal viscera and the parietal peritoneum is thoroughly reliable. After allowing the gauze to remain from four days to a week, the adhesions are so firm that the gauze is very difficult of removal, later, with the formation of granulations, a serous exudate takes place and the gauze is easily withdrawn. The usual course taken in draining a hemato-colpos where rupture of the tubes is threatened, is to allow the blood to escape gradually, possibly two or three ounces at a time, so that complete drainage is effected in from one to two days. After the operation for removal of the atresia may follow with much less danger the contraction being gradual and the adhesions yielding to the steady tension.

The second danger mentioned, that of infection formerly

much feared, can at the present time be practically excluded. With proper precautions during operation, followed by free drainage and antiseptic douches, infection can be avoided. When air comes in contact with the retained menstrual fluid, the latter has a great tendency to decompose rapidly, the dilated condition of the uterus and tubes favors the rapid transmission of the infection to the peritoneal cavity. The results of operations of this nature in the pre-antiseptic period were disastrous, almost all of the cases terminated fatally as the result of infection. The septic symptoms appeared shortly after operation, and the diffuse peritonitis which resulted usually terminated fatally in from three to four days.

With the next form of vaginal atresia I give the congenital atresias of the rectum, their mode of development being very similar. Imperforate introitus vaginae and imperforate vagina are parallel conditions to imperforate anus and imperforate rectum, and may be found associated with each other. The lower portion of the alimentary canal is not formed by the hypoblast, but by the epiblast—that is, by an involution of the skin which meets the rectum and fuses with it. Should this involution fail to take place, the condition of imperforate anus results, and there will be no attempt whatever at the formation of an anus, where it *should* be found, there is a continuation of the normal skin. A similar process may take place at the vaginal orifice, when the involution of the skin which fuses with the lower portion of Mueller's ducts fails to develop, as a result the skin is continuous from the perineal body to the urethra. In both the rectal and the vaginal forms, the atresia is made up of three layers—the internal or mucous layer, the external skin, and a layer of connective tissue between.

I have not found any designation for this form of atresia, the term *imperforate introitus vaginae*, which I have used, appears applicable. This is the condition which existed in my patient. Probably the rarity of this form is the reason for its not having any special designation. In investigating over 1300 cases I have not been able to find a similar condition described. This form might, as before mentioned, be mistaken for an imperforate hymen, but the characteristic continuation of the skin is not present in the latter, it always being of a membranous consistency. The treatment of this form will be described later, in connection with the report of my case.

Imperforate rectum is caused by a lack of development of the lower portion of the alimentary canal, with failure of fusion with the external depression, on examination per anum a short, blind pouch is felt.

The corresponding form in the vagina exists when the tube formed by the ducts of Mueller fails to develop sufficiently to meet the external depression at the vaginal orifice, and as a result a transverse atresia forms in the lower third of the vagina. The correct term for this condition would be *imperforate vagina*. A failure in fusion may take place even when the external depression and the vagina are both fully developed, the two canals running in a parallel direction, giving rise to an oblique atresia in the lower third of the vagina. This condition is rarely met with.

It is questionable if transverse congenital atresias form in the middle or upper third of the vagina, several authors are still of the opinion that they may, but their theories regarding the development of this condition are unconvincing. In most of the cases reported it is questionable if the acquired form was not present. That this form may result from the failure of fusion of Mueller's ducts is hardly to be believed. It would not seem possible that fusion could be interrupted in this manner. The atresias of this nature are usually broad, involving either the upper or lower portion, or the entire lumen of the vagina. Breisky regards the transverse atresias in this location as secondary inflammatory obliterations occurring in fetal life, caused by destruction of the epithelium resulting from pressure.

Gottschalk observed atresia in the vault of the vagina, which he considered acquired. In one of his cases, a nullipara, 32 years of age married one year, the vagina was only five centimeters long. In the left anterior vaginal vault, in close proximity to the external os, the mucous membrane showed a fold, semilunar in form and very sharply defined, it projected onto the anterior lip of the portio vaginalis. The inner border of this membrane was very delicate. As a fine border of epithelium it projected from the anterior lip, gradually becoming thicker and broader, assuming its greatest breadth and thickness in the left lateral vault. It also projected into the anterior vault below the os, gradually terminating to the right. Thus the left lateral and anterior vault was occluded, the right side remaining patulous. Gottschalk believes that this form develops during the formation of the anterior vaginal vault. Martin regarded this case as an acquired one, and has observed similar occlusions following gynecological operations and labor.

As before mentioned, the atresias resulting from failure of fusion of Mueller's ducts are always extensive, involving a large area of the vagina. It is often difficult to differentiate this form from the acquired one. The history of the case is of the greatest

importance in making the diagnosis. The congenital form is characterized by its uniform consistency and the absence of cicatricial contraction.

The operative treatment which has been pursued in this form is of particular interest. The first step of the operation is to establish a canal between the introitus and the os uteri. This is accomplished by dissection through the connective or cicatricial tissue, as much blunt force as possible being used. The use of the finger should be preferred, the tissues being felt as they yield, and perforation into the rectum and bladder being thus more readily avoided. The dangers mentioned are great, many patients have sustained either a fecal or urinary fistula as the result of an unsuccessful operation. By palpating the rectum and the dilated urethra during the operation, these unpleasant complications may be avoided. The canal having been established, the most important part of the operation follows—that is, the prevention of contraction—for it is evident that should the canal be left to its fate it would contract very rapidly, and in a short period of time again become obliterated. Packing, introduction of glass tubes, rubber and metallic dilators, colpeurynters and many other devices have been used to prevent contraction, usually without result. A typical case is one of Schlessinger's, a young lady, 22 years of age, of extremely nervous disposition, who had for a year suffered from hystero-epileptic attacks. Examination per rectum revealed defectus vaginæ et uteri. Schlessinger could not find any literature on the subject of treatment of these cases, with the exception of one unsuccessful operation post-nuptius. He nevertheless decided to operate, and with scissors, knife and blunt force burrowed a canal between the rectum and bladder six centimeters in length. He abstained from attempting to make the opening deeper, fearing hemorrhage and penetration of the peritoneal cavity. The canal was packed with gauze, and in twenty days healed by granulation. Examination at this time permitted the introduction of the first finger without causing pain, the tissues were found soft and pliable. Rubber dilators were used to prevent contraction, but in vain. The only benefit of the operation was the disappearance of the nervous phenomena.

Cross in the same manner established an artificial vagina, which contracted in spite of permanent dilatation. A second operation is supposed to have given a satisfactory result, *et* permitting sexual intercourse.

Implantation and transplantation of skin and mucous membrane have been attempted by Kustner, Neugebauer, and others.

Kustner transplanted two patches of the mucous membrane of the human small intestine, of four centimeters area, which he procured from a patient being operated on at the time for artificial anus. The membrane was sutured to the denuded surface. Union resulted, but, the transplantation not being extensive enough, the upper third of the vagina was obliterated. In a second operation this portion was again denuded and a further transplantation made, this time strips of mucous membrane being used which were taken from a patient on whom kolporrhaphy was performed. The result was again unsatisfactory, the patient returning in less than a year, begging for a larger vagina. The third operation followed, in which the cicatrices were excised and a vaginal, autochthonic flap transplantation made, resulting in a uniform dilatation of the canal large enough for modest demands. Kustner does not give any further history of the case, it is not known whether contraction again took place, the probabilities are that it did.

Sapiesko transplanted patches of mucous membrane from another vagina in a similar manner, in his case sloughing of the membrane resulted. Rein established a new vagina by transplantation of skin flaps—one seven centimeters long, from the gluteal region, the other, obtained from the inner surface of the large labia, four centimeters long. In two subsequent operations the remaining granulating surfaces were covered by epidermis removed from the thigh. As a final result a small vagina was established.

Rein considers the transplantation of skin better than implantation, as it is less apt to be followed by contraction. He is in favor of operating in all cases, he believes that at least an attempt should be made to relieve a condition which is liable to lead to great misfortune. The good effects which the operation has had upon the hysterical and nervous phenomena are encouraging. Hematokolpos he regards as a vital indication for operative interference.

Credé operated on a woman 50 years of age for extensive acquired vaginal stenosis, after cutting through the cicatrices and establishing a canal, he transplanted a large flap from the left labium major extending from the mons veneris down into the perineum. The flap six centimeters long and twelve broad, received its blood supply from its perineal attachment. The distal end reached as far as the cervix, where it was sutured, its lateral borders were sutured in the vagina. In this manner the entire denuded surface was covered. The greater portion of the surface healed *per primam*, the remaining part by granulation. The hair which now grew in the vagina did not molest the patient. The melancholia from which she

had been suffering disappeared entirely. There was hardly any indication for operation in this case, what benefit is derived therefrom in patients so near the menopause? Neugebauer, in commenting on the case, said that the operation was more of an interesting entertainment for the operator than a benefit to the patient.

The operative treatment of stenosis, providing it is not extensive, is not as unfavorable as that of atresia, extensive lateral incisions with packing often resulting in complete cure. Should the stenosis be annular, it may be excised, and the mucous membrane above and below brought together and sutured, this is, however, apt to result in contraction. The results of operations for complete atresia have been so unsatisfactory that the operation should not be undertaken.

External acquired stenosis may follow trauma, agglutination of the smaller labia, and kraurosis vulvæ. Atresia caused by the small labia, following inflammatory processes, is usually met in children, it reaches as far as the urethra, rarely occluding it. The adhesions are not firm, and may be easily divided with the finger or a blunt instrument.

Kraurosis vulvæ, a peculiar affection of the skin of the external genitals, the etiology of which is yet unknown, has been observed to give rise to stenosis and atresia. The usual seat of the affection is the vestibulum, the small labia with the frenulum, the preputium clitoris, and the inner surface of the large labia. It is not always that all of these parts are involved. The disease may be unilateral or in multiple patches. In all cases where it was extensively developed it has given rise to stenosis (Fig 14). It is only in the advanced stages that it causes any symptoms. The skin and vulva are tense, the normal folding of the skin having disappeared, the small labia are entirely obliterated. The diseased portions have a grayish color, while the surrounding skin, which during the process of contraction has been drawn toward the seat of disease, is of a reddish-brown color and of a glistening, dry appearance. Ortmann, Martin, and Breisky, hoping by careful examination of the pathological conditions to acquire a more accurate knowledge of the nature of the disease, found that a small-cell infiltration of the corium was present, particularly marked in the deeper layers, extending to the subcutaneous tissue, and an advanced atrophy of the skin in all of its parts, including the glands and hair-follicles, and contraction of the blood-vessels. Ortmann says that the stage of atrophy is preceded by that of hypertrophy, on examination of the borders of the disease he has found, under the very thick-

ned stratum corneum the thickened and broadened rete Malpighii. Peter had an opportunity to examine a case which he considered incipient, and came to the conclusion that in its early stage kraurosis vulvæ is a chronic hyperplasia of the connective tissue, with tendency to cicatricial contraction inflammatory edema of the upper layers of the corium and epidermis, and degeneration of the elastic tissue. Excision of the diseased portions is the only means of arresting the growth of the disease, plastic operation being possibly necessary to restore the introitus to its normal size.

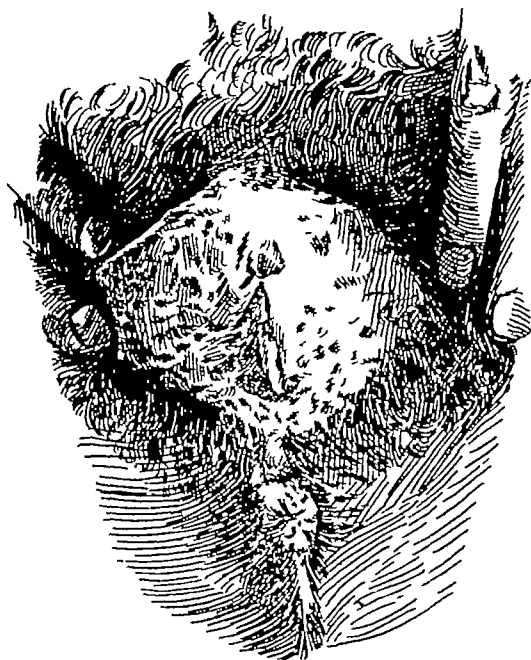


FIG. 14.—Kraurosis vulvæ. Stenosis introitus vaginae.

The greater proportion of acquired atresias and stenoses are due to childbirth, forming in the puerperium, the result of extensive lacerations of the mucous membrane puerperal necrosis, infective colpitis, ulceration and perikolpitis, always followed by cicatricial

contraction and adhesions Stenosis is the usual result, but complete atresia may follow

Breisky's atresia retro-hymenalis, due to adhesions of the mucous folds, is located directly behind the hymen, but is not connected with it The adhesions are not preceded by any inflammatory or ulcerated condition of the mucous membrane, and for this reason have been regarded as physiological by several authors This form is usually met with in children, it greatly resembles imperforate hymen, having when pushed forward the appearance of a fluctuating, bladder-like tumor of soft consistency and bluish color, protruding into the vulva It usually ruptures spontaneously, if not, the adhesions are easily broken up by the finger or by some blunt instrument

It is not usual that atresia of any form gives rise to retention symptoms before the appearance of menstruation Formation and retention of fluid, giving rise to pressure symptoms in the bladder and rectum, may take place as early as the third day The fluid is then of a mucoid, whitish appearance and contains a large number of pavement-epithelial cells It never contains blood, and is rarely purulent

Vaginitis adhesiva ulcerosa (Hildebrandt) is a vaginitis appearing in old women, rarely forming before the age of fifty, always after the appearance of the menopause The patients usually give a history of severe labor or erosions and lacerations of the cervix The upper third of the vagina is the seat of the disease in nearly all cases The mucous membrane is smooth, not swollen, light red in color, and has a bruised appearance The epithelial layer is entirely destroyed The papillæ are swollen, and if irritated by the finger or speculum are apt to bleed The secretion is sticky, thin, milky, often mixed with bloody streaks, it contains pus-corpuscles and pavement epithelium The diseased portions always show a great tendency to form adhesions with the portio vaginalis, these are usually extensive, covering the portio and obliterating the anterior and posterior vaults This condition has frequently been observed in post-mortem examinations, where the condition during life had not given rise to symptoms Operative interference is absolutely contra-indicated This is probably the form that was present in the case operated on by Credé

Atresia and stenosis may result from constitutional diseases—acute exanthemata, cholera, typhoid fever, erysipelas, syphilis, and tuberculosis I will not describe the varieties, that would pertain more to a study of colpitis I will only mention Kleinwachter's

ing case following pemphigus of the lower extremities, the
ions forming after destruction of the epithelial layers, and
higus blebs and excoriations being found on the portio vagi-

In Schulze's case complete atresia followed pneumonia

Trauma is an important factor in the etiology of stenosis and
a Numerous cases have been recorded following impalement,
he penetration of the vagina by a stick, handle of a pitchfork,
f a fence, or similar implement, by which the injured person is
ically fixed upon the piercing object In a dissertation on
palement," in Wurzburg (1892), I reported several cases of
nature Mattheyson reports a case in which adhesions occurred
falling against the edge of a chair at the age of four years
ing observed a case in a child which had been run over In all
e cases the injury was followed by cicatricial contraction, the
t of extensive lacerations associated with infection The intro
on of foreign bodies such as pessaries, spools, etc may be
ioned as a traumatic cause Operations on the external genitals
frequently resulted in stenosis Ahlfeld saw extensive con
on following the excision of four condylomata lata Stenosis
ollowed operations for removal of large tumors, plastic opera
and the use of the ferrum caudens The effect that astringent
cauterizing agents may have is, usually, contraction by the
er and stenosis or complete atresia by the latter Sulphuric,
e and other acids have been used in attempting abortion, the
t being a complete destruction of the mucous membrane, the
r sloughs and may be pulled out like an inverted glove finger
w surface is then present, which has a tendency to cause oblit
on of the canal

Vesico-vaginal and recto-vaginal or other forms of fecal fistula
e vagina may give rise to extensive contraction, the extent of
aceration and the associated injuries together with the form of
itis and perikolpitis, determines the degree of contraction which
result Frequently there may be none I had occasion to
ine a woman in Hofmeier's clinic who suffered from a vesico-
al fistula in the upper third of the vagina of over ten years'
ling, and who had submitted to repeated unsuccessful opera
there was no evidence of contraction Only a few months ago
d a patient under my care with a fecal fistula of three months'
ling in the upper portion of the vagina, following vaginal
erectomy, during three months the entire contents of the intes
tract were evacuated through the fistula, a severe kolpitis and
xtensive eczema of the external parts developed, examination

became so painful that it had to be abandoned. I closed the fistula by laparotomy. Three weeks later the vagina was again in a normal condition, soft, pliable, with no contraction whatever.

Mary E—, aged 22 years, had been married one year when she consulted me. Had never been sick up to her nineteenth year, with the exception of frequent pains in the "small" of the back. During her seventeenth and eighteenth years she had also slight attacks of abdominal pain, the pain in the back being increased at the same time, at intervals of from four to six weeks, the pain was never very severe during the attacks, which lasted about two days. She was not confined to bed during this time. In the beginning of her nineteenth year, at the usual time for an attack to make its appearance, she was seized with very severe pain, extending over the entire abdomen, she suffered greatly from nausea and vomiting and a heavy, dragging, tense feeling in the pelvis, the pain in the back also being very severe, she did not notice any difficulty in urination or defecation. She was confined to bed for three weeks, being treated by a physician for "neuralgia of the stomach." The pain subsided gradually, but a heavy feeling remained in the pelvis. One week later—a month from the date of the previous attack—she was again attacked in a similar manner. This time the physician examined her and found an atresia. A puncture was made through the same, admitting a probe, and the retained menstrual fluid slowly escaped. Since then she has been relieved of the attacks, menstruation has appeared regularly and continued for about three weeks each time, and though not profuse there was a constant oozing through the established opening. A year before I examined her, she married, all attempts at sexual intercourse were futile, principally for this reason she applied to the hospital for relief.

Examination. Well developed young woman, breasts fair size. External genitals normal, with the exception of the vestibulum vaginae, which was covered with skin, the skin being continuous from the perineal body up to the urethra and laterally from one lip to the other. The artificial opening was on the left side of the median line, an ordinary grooved director could not be passed through it. A very fine probe which was with difficulty inserted seemed to enter a cavity, could be felt *via* the rectum, and was freely movable. Bimanual examination (abdomino-rectal) revealed the uterus apparently of normal size and retroflexed, the tubes and ovaries could not be defined. The diagnosis of imperforate introitus vaginae was made.

Operation. Using the inserted probe as a guide, the atresia was

incised with a knife large enough to admit a finger, then dilated as much as possible. On inspection the mucous membrane had retracted considerably. Considering that the opening established in this manner would not be large enough for the purpose desired, the perineal body was split, leaving only a thin septum between the vagina and rectum. The mucous membrane of the vagina was now loosened and sutured to the external skin, and the seat of operation packed with iodoform gauze. A week later the sutures were removed, the opening was large enough to admit the thumb without causing any pain, and undoubtedly large enough to permit sexual intercourse. The patient left the hospital a week later feeling very much improved.

The operation was similar to that suggested and performed in one case by Kelly, who, however did not split the perineal body. This I think should be done in all cases where subsequent contraction is liable to occur. It has the disadvantage, however, of being the possible cause of a prolapsus. In my case I considered it a necessity, and I do not think there is any danger of prolapsus following, at least before childbirth.

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SALIVARY CALCULI

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A few months ago I extracted two calculi from a submaxillary gland, and, as such calculi are very rare occurrences, I thought it well to report the case, Professor Christian Fenger then favored me by putting at my disposal a calculus which he had removed from Wharton's duct, and Dr W P Verity kindly gave me another, which he had taken away either from a sublingual gland or from one of its ducts

Case 1 Submaxillary calculi — Mr M——, 34 years of age, about four years ago, while eating, noticed the appearance of a swelling under the jaw, on the left side. A moment's pressure of his finger on the swelling caused it to disappear. This occurred several times. Three years ago this spring he noticed a similar swelling, which, however, became enlarged and painful, pressing had no effect. A physician was called, who prescribed poultices and leeches, and after a week the swelling gradually disappeared. After about six months the same trouble came again, but this time it did not yield to treatment as readily as before. After about another six months it again made its appearance and was more stubborn than ever. Altogether the patient had suffered from such attacks four or five times when he called upon me.

I found him a tall, slender, somewhat anemic man, with a "weak" stomach and an enlarged gall-bladder—he had suffered from several attacks of gall-stone colic, he complained of pains in the left submaxillary region and some difficulty in swallowing. The left submaxillary region was swollen, there was a swelling on the floor of the mouth, along Wharton's duct, and on pressure of the submaxillary gland, pus of a greenish color escaped from the orifice of Wharton's duct on the left side. A calculus could not be felt, but the frequent attacks on the same side, in the course of years, together with the fact that the patient had never suffered from tonsillitis, pharyngitis, or stomatitis, suggested the idea that a calculus might be the cause of the trouble.

I then called in Dr John S Marshall for surgical aid. Dr Marshall passed a small silver probe into the duct and discerned, at a depth of seven centimeters from the cutting edge of the inferior central incisor tooth, a hard body, which led to the belief that a

calculus was present in the gland. He then cut open the upper third of the duct, and introduced an especially prepared slippery-elm tent, intending to remove the tent after a lapse of twenty eight hours and look for a calculus.

In the course of the next night the swelling and the pains increased considerably, involving the left side of the face and neck, and the whole tongue, compelling me to remove the tent after it had been in position for twenty four hours. The removal of the tent was followed by a gush of about an ounce and a half of saliva and greenish pus. On passing a probe we felt a calculus deep down in the gland. Dr. Marshall then passed a grooved director down to the calculus, and with a curved bistoury laid open the duct throughout its entire length. The incision measured about two centimeters at the surface of the floor of the mouth, but probably not more than one centimeter at the level of the calculus. This, however, did not enable him to take hold of the calculus and extract it. My own attempts in the same direction also failed, and we therefore packed the incision to further dilate the duct and make another attempt the following day. The next morning after removing the packing and washing the gland thoroughly with a 5 per cent. solution of carbolic acid and then with peroxide of hydrogen, through a rubber catheter, I succeeded in removing a small faceted calculus of a yellowish color, weighing one grain. On the same evening I removed another calculus, also of a yellowish color weighing twenty four grains. A



FIG. 1.—Calculus from submaxillary gland (Piltterer)
Natural size.

thorough probing of the cavity convinced me that no more calculi were present, but for greater certainty I introduced a urethral electroscope, and, as the bed of the concretions was in the upper posterior portion of the gland, I had no difficulty in submitting the parts to ocular inspection. If the thought of using the electroscope had suggested itself to me sooner, I could have easily ascertained the size, shape and position of the calculi, and this would have facilitated their extraction materially.

During the following two weeks the cavity was cleaned twice a day, and after each cleaning the duct was loosely packed with gauze

to prevent foreign bodies from entering. Later on, when the duct grew smaller, a silver tube was introduced and allowed to remain. Twice this tube was changed for a smaller one, and now the patient wears one that has about the diameter of a normal duct. All those tubes I fastened to the incisor teeth with silver wire.

Chemical Examination Dr J A Wesener, who made the chemical examination, reports as follows: "Specific gravity, 1.584. It is composed of calcium, sodium and potassium acid phosphate, with a trace of xanthine and iron. Tests for ptyalin, potassium sulphocyanide, fats, fatty acids, carbon dioxide, magnesium, and inorganic acids, negative."

The microscopical examination (Futterer) gave no particular results.

Case 2 Calculus from Wharton's duct—The following history was kindly given me by Prof Chr Fenger, who observed the case.

Mrs X, 50 years of age, on partaking of sour food, would occasionally notice a little lump arising in the right submaxillary region, accompanied with some pain. In half an hour the lump would disappear, and would not return for two or three months. So it ran along for years. The patient never had any sore throat or stomatitis until about two months before operation, which was performed on the 21st of January, 1895. The lump, however, had been continuously present for some time, the submaxillary swelling tender, and the throat and right half of the floor of the mouth sore. Swallowing was painful all the time, and she had been gargling with listerine since the latter part of November to cure what she considered to be a sore throat. Sometimes when she sat down to a meal, the lump would assert itself very suddenly, with a kind of dull pain, which would continue for fifteen or twenty minutes, sometimes an hour, or even on rare occasions an hour and a half. Then the swelling would disappear spontaneously. She never noticed that any fluid came into her mouth, or that she had to spit, the swelling simply disappeared. When the swelling was present there would be a sensation of pain and distress in swallowing.

Under anesthesia the duct was opened for three-quarters of an inch, and with forceps a stone was removed from behind and below the posterior border of the mylo-hyoid muscle. The cavity was about two centimeters long and one centimeter wide. The duct was found dilated. The cut portion was united by sutures, and healed almost entirely by first intention. After healing, a probe was passed freely from an opening close to the papilla to the posterior part of the duct, where an opening into the mouth remained, through which

saliva or clear mucoid fluid could be squeezed up by pressure on the gland Ten days after the first operation, Professor Fenger, without an anesthetic, closed this opening by sutures, after three weeks it was closed permanently

An examination made April 18, 1896, showed that the patient had remained perfectly well sublingual and submaxillary glands normal, also Wharton's duct no opening at posterior border of mylo-hyoid muscle, a probe could be passed through a small opening two millimeters outside of the papilla for a distance of two to three centimeters, duct not dilated



FIG. 2.—Calculus from Wharton's duct (Fenger)
Natural size

Chemical Examination Specific gravity, 2.306 Stone composed of calcium, sodium and potassium acid phosphate, with a trace of iron and uric acid

Case 3 Calculus from a duct of the sublingual gland—Dr W P Verity gives me the particulars of a remarkable case His patient was a woman aged 40 At the age of 12 she began to feel a swelling at the left side of the floor of the mouth, which would come and go and which interfered with mastication, but not with swallowing, twenty eight years later the swelling had increased so that it lifted up the tongue and pressed it over to the right side Interference with mastication increased, but there was no difficulty in swallowing A calculus could be felt about $1\frac{1}{2}$ inches from the caruncula salivalis Dr Verity cut into the mass, pus was evacuated, and with it a calculus



FIG. 3.—Calculus from duct of sublingual gland (Verity)
Natural size.

The calculus was of cylindrical shape, the ends rounded off flattened on one side of its longest diameter so that a cross section would show a plano-convex shape, surface warty, color grayish white, and consistency hard

Avenzoar, who lived in the thirteenth and fourteenth centuries, seems to have been the first to recognize the presence of salivary

to prevent foreign bodies from entering. Later on, when the duct grew smaller, a silver tube was introduced and allowed to remain. Twice this tube was changed for a smaller one, and now the patient wears one that has about the diameter of a normal duct. All those tubes I fastened to the incisor teeth with silver wire.

Chemical Examination. Dr J. A. Wesener, who made the chemical examination, reports as follows: "Specific gravity, 1.584. It is composed of calcium, sodium and potassium acid phosphate, with a trace of xanthine and iron. Tests for ptyalin, potassium sulphocyanide, fats, fatty acids, carbon dioxide, magnesium, and inorganic acids, negative."

The microscopical examination (Futterer) gave no particular results.

Case 2. Calculus from Wharton's duct.—The following history was kindly given me by Prof. Chr. Fenger, who observed the case.

Mrs. X., 50 years of age, on partaking of sour food, would occasionally notice a little lump arising in the right submaxillary region, accompanied with some pain. In half an hour the lump would disappear, and would not return for two or three months. So it ran along for years. The patient never had any sore throat or stomatitis until about two months before operation, which was performed on the 21st of January, 1895. The lump, however, had been continuously present for some time, the submaxillary swelling tender, and the throat and right half of the floor of the mouth sore. Swallowing was painful all the time, and she had been gargling with listerine since the latter part of November to cure what she considered to be a sore throat. Sometimes when she sat down to a meal, the lump would assert itself very suddenly, with a kind of dull pain, which would continue for fifteen or twenty minutes, sometimes an hour, or even on rare occasions an hour and a half. Then the swelling would disappear spontaneously. She never noticed that any fluid came into her mouth, or that she had to spit, the swelling simply disappeared. When the swelling was present there would be a sensation of pain and distress in swallowing.

Under anesthesia the duct was opened for three-quarters of an inch, and with forceps a stone was removed from behind and below the posterior border of the mylo-hyoid muscle. The cavity was about two centimeters long and one centimeter wide. The duct was found dilated. The cut portion was united by sutures, and healed almost entirely by first intention. After healing, a probe was passed freely from an opening close to the papilla to the posterior part of the duct, where an opening into the mouth remained, through which

saliva or clear mucoid fluid could be squeezed up by pressure on the gland. Ten days after the first operation, Professor Fenger, without an anesthetic, closed this opening by sutures, after three weeks it was closed permanently.

An examination made April 18, 1896, showed that the patient had remained perfectly well. Sublingual and submaxillary glands normal, also Wharton's duct. No opening at posterior border of mylo-hyoid muscle, a probe could be passed through a small opening two millimeters outside of the papilla for a distance of two to three centimeters, duct not dilated.



FIG. 2.—Calculus from Wharton's duct (Fenger)
Natural size.

Chemical Examination. Specific gravity, 2.306. Stone composed of calcium, sodium and potassium acid phosphate, with a trace of iron and uric acid.

Case 3. Calculus from a duct of the sublingual gland.—Dr W. P. Verity gives me the particulars of a remarkable case. His patient was a woman aged 40. At the age of 12 she began to feel a swelling at the left side of the floor of the mouth, which would come and go, and which interfered with mastication, but not with swallowing, twenty-eight years later the swelling had increased so that it lifted up the tongue and pressed it over to the right side. Interference with mastication increased, but there was no difficulty in swallowing. A calculus could be felt about $1\frac{1}{2}$ inches from the caruncula salivalis. Dr Verity cut into the mass, pus was evacuated, and with it a calculus.



FIG. 3.—Calculus from duct of sublingual gland (Verity)
Natural size.

The calculus was of cylindrical shape, the ends rounded off, flattened on one side of its longest diameter so that a cross-section would show a plano-convex shape. Surface warty, color grayish white, and consistency hard.

Avenzoar, who lived in the thirteenth and fourteenth centuries, seems to have been the first to recognize the presence of salivary

calculi "under the tongue" The earliest cases of which I have read the account in the original were reported by Lister¹ in 1672, and by Bonavert¹ in 1698

Lister reports "After a severe cold a patient noticed a hard lump in his mouth This was due to a calculus, and about eight years passed between its breeding and its being taken away" As to its growth and the inconveniences thence ensuing, he further says "Upon all fresh cold-taking, he suffered much pain in that part, and yet, that cold being once over, the part was no more painful than the rest of the mouth" Lastly, as to the particulars remarkable at the time of its being taken away, he relates "It began its work with a sudden vertigo, which lasted from spring till August, in which month, without any previous cause, save riding, the place where it was lodged suddenly swelled and emitted purulent matter at the aperture of the Whartonian duct Then it suddenly stopped its running, and swelled with great inflammation, and very great danger of choking, causing great pain when endeavoring to swallow anything liquid Incision, removal of a whitish calculus, which weighed seven grains"

Bonavert relates his case as follows "Thomas Wood, of Wrotham, was so troubled with a quinsy that he could hardly swallow any liquid I found the tumor tend to suppuration inwardly, about the root of the tongue on the right side, though it was almost as large as an egg outwardly, but without any sign of suppuration there I ordered him maturing gargles, and the next day sent my man and bid him advise him to endeavor to break it with his finger, which the man effected and brought out of his mouth near the quantity of a quarter of a pint of matter, and with it, at last, the calculus He had likewise a ranula, and before he had broken the tumor and spit out the corruption he could hardly speak I believe this stone to be of the same nature as those generated in the kidneys and bladder The weight of this stone in air is seven grains, and its specific weight, compared with water, is near $1\frac{91}{103}$ to 1"

Before the year 1800 the following writings dealt with our subject

Lister Philosophical Transactions, London, 1672

Bonavert Philosophical Transactions, London, 1698

Lister, M A stone cut out from under the tongue Philosophical Transactions, London, 1700, III, p 155

Scherer, C A De Calculis ex Ductu Salivali Excretis Argentorati,

1737

¹ Philosophical Transactions, London

Hartmann, P. L. *Calculus Sublingua Excretum Describit.* Helmstadii, 1762

Würger F. *Bemerkung von einem Speichelsteine* Kopenhagen, 1778

Titius, S. C. *De Calculo Salivali Sponte Excreto Observatio* 1794

Imnusch, in 1861, opposed the opinions of English physicians, that there was a practical relation between the origin of salivary calculi and gout. His own opinion was as follows: "Inflammations of the salivary ducts are frequent occurrences, and if such inflammations become chronic they may cause small elevations and indentations which will narrow the lumen of the duct, thereby causing a retention of saliva. Saliva will be retained in folds and pockets, and crusts form, to which mucus and pus are added. This crust leaves open the centre portion of the duct, and so the canal is formed which has been found in salivary calculi. In the interior of the gland the calculus is formed in the same manner, but here the calculus has no central canal."

Mareau accepts three causes: first, foreign bodies which have accidentally entered the duct; second, tartar (hypothesis of Richet); third, inflammatory strictures.

Let us see what material literature gives us for reasoning in this direction.

De Closmadeux (1855) says that in two cases foreign bodies had been found.

S. Michel (1867) describes the formation of a calculus in a duct of the sublingual gland, after this duct had been pierced through by a fish bone, the latter forming the nucleus of the calculus.

J. W. Hulke (1872) found a dark central speck, which proved to be a fragment of wood.

Rochs (1894) saw shot as a nucleus, in a musician who used to clean his instrument with shot; it had been aspirated, pressed into the *caruncula salivalis*, and by way of the duct had entered the gland.

Rayer found a foreign body the size of a gooseberry seed as a nucleus.

Roberts (1869) saw a man 54 years of age who, twenty years before, had eaten some mustard and got a small mustard seed under the tongue, which caused him violent pain for some days. The pain finally subsided, but the patient felt a small lump there ever after. This lump under the tongue would swell and pain him whenever he took cold, but the trouble would disappear with the cold. Dr. Roberts removed a calculus, and in its centre found a cavity "very much the size and shape of a mustard seed," but he found no mustard seed.

In the foregoing six cases foreign bodies were ascertained beyond a doubt as the nuclei of the calculi, while in one case it seems certain that a mustard-seed had been there but had disappeared

Kochling (1835), who published a case of calculus, thought it necessary to mention that the teeth of his patient were covered with thick layers of tartar, and Mareau and Richet also call attention to tartar as a probable cause

Wyatt Pratt (1871) had a patient who had once shown symptoms of tuberculosis of the lungs, and had coughed up from the bronchial tubes some calcareous concretions, while later came a number of calculi from Wharton's duct

Gross foreign bodies which enter the mouth with the food, or in a more accidental manner, can become the cause and the nuclei of salivary calculi. This has been found true in a comparatively small number of cases. Extraneous materials present in the oral cavity, breaking loose and entering the ducts, can cause the same effects. I refer to fragments of decayed teeth, and especially tartar. The fact that chemical analysis revealed in my own case xanthine, a derivative of uric acid, and in Professor Fenger's case uric acid, points to tartar as a cause, as tartar sometimes contains uric acid. Dr J. A. Wesener, who has analyzed the tartar of one hundred teeth, found uric acid in eight of his specimens.¹ Small pieces of tartar often break down and can very easily enter the ducts, especially Wharton's duct, and here we find the most calculi, which are very rare occurrences indeed in Steno's duct. Gravitation will bring the pieces down to the bottom of the mouth rather than up to Steno's duct, they will also remain there longer, and occasion to enter will offer itself more readily. The lower incisors are places of predilection for the formation of layers of tartar, which here project as plates over the margin of the gums and easily break down.

Bacteria, especially *leptothrix buccalis*, may give rise to the formation of a calculus. Bacteria have so far, according to my knowledge, not been found in salivary calculi, and I have not found them in my cases, but that is of little importance if we remember that a mustard-seed could have disappeared, and that tubercle bacilli seemingly disappear, in old fibrous and calcified tubercles, and if we further consider the length of time needed for the formation of a stone.

A certain disposition for calcareous depositions is indicated by the case of calculus of Wharton's duct of Wyatt Pratt, in which

¹ *International Dental Journal*, April, 1896

calcareous concretions were coughed up, and also by my own case, in which the patient had an enlarged gall bladder and had suffered from occasional attacks of gall stone colic

I have reviewed forty five cases of calculus in the duct of the submaxillary gland, nine cases from the submaxillary gland, four cases of calculi which seem to have occurred in the sublingual gland, and four in its ducts. So the calculi are chiefly found in Wharton's duct, while they are very rare in the submaxillary gland and in the sublingual gland and its ducts. I may add that only a few cases of calculi have been found and reported in the parotis and Steno's duct in man, while a great many have been reported in animals. If to our number of cases, sixty seven, we add the ninety three reports which we did not have at our disposal, the number of salivary calculi reported would sum up 160, and bearing in mind that these are the cases reported from the thirteenth century up to date, we must come to the conclusion that salivary calculus in human beings is a rare occurrence, even if we grant that there may have been cases in which the nature of the trouble was not recognized, and other cases which have never been published. Concretions were found in only three cases by Virchow, Closmadeux, and Malenfant, and they all occurred in Wharton's duct

Men are affected about ten times as frequently as women

The earliest age at which the symptoms have appeared was twelve years, and twice we find the age of seventy reported as the time of operation and relief, but from the twentieth to the fortieth year is the preferred time of life

One calculus was found in fifty five cases, ten calculi in one case, and a great many in one case

The symptoms of calculi of the submaxillary gland and its duct may be classified as follows

1 Symptoms of the Initial Stage. Only in one case was this stage well marked by severe pains, caused by the entering of a mustard seed (Roberts), which then caused the formation of a calculus

2 Symptoms of the Stage of Formation of a Stone and of its Growth. This stage may be passed through without any noticeable symptoms arising. Bruce reports a case in which a calculus existed for fourteen years without causing much inconvenience. Most patients on eating, especially if the diet be particularly tempting (Elston), will suddenly notice a swelling in the submaxillary region, which according to its degree may be more or less painful. On resting the mouth and pressing on the swelling the latter

will disappear. Such swellings will also come and go with colds (Lister, Roberts). They appear in the submaxillary region, are of a hard consistency, and are also to be seen and felt at the floor of the mouth between jaw and tongue, pressing the latter upwards and somewhat to the other side. In one of Hulke's cases the swelling seemed to be so firmly grown on to the hyoid bone that it was taken to be a fibroid. If the calculus is lodged in Wharton's duct, it can often be felt by the patient or the physician. Alston's patient complained of being unable to eat, of feeling a weight, and of having a rock in her mouth, while a patient of Freudenberg had noticed a calculus which projected and could be seen close behind the right *caruncula salivalis*. The voice also may be affected. Clark, in speaking of a patient, says "His voice, which had been harsh and coarse, after removal of the stone became flexible and resonant." Severe attacks of toothache, caused by the presence of a calculus, have also been observed at this stage, and Lister reports vertigo lasting from spring until August. Elston says "The sympathy existing between the nerves of smell and taste was in my case most beautifully illustrated, for, according to the patient's account, he could never pass a savory smell without feeling a sudden enlargement of the submaxillary gland and pain, and he said he had dined but a few days previous to my seeing him on a meal which always used to make his mouth water, but which, in this instance, in consequence of the outlet of the duct being completely closed, had produced so violent a distention of the gland as to at once set up such a degree of active inflammation as shortly after led to the discovery of the nature of the disease."

3 Symptoms of the Stage of Suppuration. Suppuration prepares for the expulsion of the stone, which in many cases is brought about by way of the duct or by way of a fistula, of which I find three cases reported, in one of which Nélaton extracted a calculus through a fistula. Such a suppuration may come suddenly, causing considerable swelling of the gland and the surrounding parts, great difficulty in swallowing and in mastication, impaired speech (Bonavert), facial pains (Rouyer), attacks of suffocation (Lister, Jessup), and in Oliver's case the opening of the mouth was prevented by the painful swelling. In short, this stage brings quite a variety of symptoms and a great deal of suffering to the patient, who soon seeks relief.

The stage of suppuration may, however, come and go several times, or it may become extremely chronic, as in Terrier's case, swelling and discharge of pus lasted for a long time.

Symptoms of Calculi in the Sublingual Gland and its Ducts — Immisch (1891) considered the formation of calculi in the sublingual ducts improbable. Michel (1867) reported a case, which I have already mentioned, in which a fish bone had pierced a sublingual duct, and then a stone had formed. And I think all doubts are removed by Dr Verity's case, in which there was no difficulty in swallowing but great difficulty in mastication, much swelling in the mouth but very little to be seen in the submaxillary region, and while there may have been some slight compression of Wharton's duct, the stone could not have been lodged there, but must have been in the sublingual gland or one of its ducts, judging from the shape of the stone and from the fact that it could be felt, I should say it was in a duct. As by far the most calculi are found in the ducts, the symptoms, together with the results of palpation and careful probing, will throw light on the case, the probing becomes especially useful if a calculus is located in the gland where it cannot be felt by palpation.

Modes of Procedure for Removing Calculi — Bonavent (1698) sent his man to the patient, and bade him tell him to try and break it (the tumor) with his finger "which the man effected." J W Hulke (1872) made his way to an abscess cavity in the submaxillary gland, from the outside, tying the facial artery. All other operators have opened the abscess wherever they found it, or proceeded by way of the duct, cutting it open. Fenger anesthetized his patient, cut the duct and sewed it up again, while Marshall cut the duct and then dilated its lower portion with a slippery-elm tent.

In our sixty seven cases, five single relapses occurred, while in another case three relapses were reported as occurring in the course of twenty years. In one of those cases the calculus is said to have grown within a year, but I would rather believe it had already been present when the other calculus was removed. Calculi had very probably been left in in some of the other cases also, and it seems as if real relapses were very rare, so that we may consider the prognosis to be good if at the time of operation all calculi present are removed. Other bad consequences such as stenosis etc, I have not found recorded.

The calculi reported measure up to 6 centimeters in length and $5\frac{1}{2}$ centimeters in width, and they have been found to weigh up to 18 grammes (270 grains).

Their form is more or less cylindrical, oval or round, or more spindle-shaped. The surface has been found smooth, but usually it is somewhat uneven, very finely granulated or warty.

The color is generally a grayish-white or a yellowish-white, but it may also be brownish

Their consistency is either hard or fragile

The cut surface is generally lamellated, and Virchow, on examining microscopical cuts, found regular formations of homogeneous lamella and granular portions of yellowish-green color. In my own case the large calculus is only lamellated in its peripheral portions, while the central part shows an irregular configuration. This stone is from the gland itself, while the two others in the original cases reported were from the ducts and lamellated throughout

The specific gravity differs very much

Chemical examination always shows the presence of phosphate of lime, and sometimes carbonate of lime. Malenfant made a quantitative analysis, finding

	Per cent
Phosphate of lime	.. 27
Phosphate of magnesium	.. 1
Basic phosphate of lime	60
Mucin insoluble in water, alcohol, and muriatic acid	4
Ptyalin..	2
Loss ..	6
	<hr/> 100

According to nationality, I have found reported 72 cases from France, 34 from Germany, 25 from England, Canada, and Australia, 12 from America, 4 from Italy, and the others from different other countries. France has had by far the most cases, but I am at a loss to even indicate why this is so

Altogether I have found 158 reports dealing with salivary calculi, and I may have overlooked others. I think it well to give all the bibliography which I have been able to gather, as I have not found a complete list of it anywhere

	No of Cases
Before 1800	16
1800-1830	11
1830-1850 ..	33
1850-1860 ..	17
1860-1870	27
1870-1880	49
Since 1880	5
Total ..	<hr/> 158

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DIPSOMANIA AS A DEFENSE FOR CRIME

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Dr J P Gray testified some years ago that¹ " 'Kleptomania' is a word used to express thieving there is no such insanity 'Dipsomania,' I call it drunkenness but I do not call it insanity at all Pyromania, incendiarism, a crime All these terms are makeshifts to secure from punishment for crime "

This demagogic evidence at the time represented neither American clinical nor forensic psychiatry Dr W W Godding,² a pupil of the Rav Brigham school of American alienists, commenting on this *a priori* cant, feelingly voiced the vast majority of American and European alienists when he remarked "We cannot deny that the old masters were as keen sighted observers as ourselves I dislike to hear drunkenness called dipsomania, as I so often do but I do not therefore say that dipsomania is only drunkenness It might improve my standing with the legal fraternity if I should pronounce kleptomania only another name for stealing, but my personal observation convinces me that the insane have sometimes a disposition to steal, which is a direct result of their disease, and for which they are no more accountable than the puerperal maniac is for her oaths "

Judge Doe, of the New Hampshire Supreme Court, affirmed a similar doctrine to that of Dr Godding in the case of the State vs Pike The prisoner being indicted for the murder of one Brown, his counsel claimed that he was 'irresponsible by reason of a species of insanity called dipsomania ' The lower court instructed the jury that "if they found that the prisoner killed Brown in a manner that would be criminal and unlawful if he was sane, their verdict should be 'Not guilty by reason of insanity ' if the killing was the offspring or product of mental disease in the defendant, that neither delusion, nor knowledge of right and wrong, nor design or cunning in planning and executing the killing and escaping or avoiding detection, nor ability to recognize acquaintances or to labor or transact business or manage affairs is, as a matter of law, a test of mental disease, but that all symptoms and all tests of mental disease are purely matters of fact to be determined by the jury, that whether there is such a mental disease as dipsomania and whether defendant

¹ Trial of Guiteau Part II p 164.

² Two Hard Cases

had that disease, and whether the killing of Brown was the product of such disease, were questions of fact for the jury " This instruction Judge Doe, in a decision replete with lucid grace of diction, clear logic, and scientific precision, affirmed ¹

This plea was practically a successful one in the case of the People *vs* O'Brien, recently tried in Chicago The chief forensic points involved, and the general history of the case so far as the defense of dipsomania is concerned, are excellently summed up in the following hypothetical case

Take a man whose mother was considered insane by her son-in-law and grandson, whose father was a periodical drunkard, whose sister is insane, and was an inmate of an insane hospital, whose other sister was peculiar and, in the language of a layman, a "little off," whose maternal aunt is peculiar and considered by at least two of her relatives insane, whose maternal first cousin is an idiot, and whose nephew has periods of seeming unconsciousness

Assume that this man when sixteen years old worked all night without necessity, and that, when asked in the morning why he did this, was apparently unable to give either a coherent account of what he did or why he did it That in mid-winter, when he was about sixteen years of age, he caused the machine knives to be ground to cut grass, although there was no grass to be cut, that on another occasion he ordered cows driven out of an orchard lest they eat the apples, when there were no apples there and snow was on the ground That this man, now at the age of about thirty-eight years, for a known period of six years immediately prior to the present time has had brief periods when he became morose, restless, gloomy, and absent-minded, and the expression of his eyes and face changed, that then follow violent drinking spells, lasting from four to ten days, that he then drinks intoxicating liquor, with or without company, in great quantities During these drinking spells he is suspicious, extremely quarrelsome, boisterous, rough, and coarse in manner, and does not discriminate in his violence between friend and foe That these periods terminate in prostrating sickness, that on recovering from these drinking spells he is pale and looks as though he had passed through a fit of sickness, that between these drinking spells there are irregular intervals of from four to six weeks when he is quiet in manner, neither profane nor vulgar in speech, attentive to his saloon business, and will often refuse intoxicating liquors, that just precedent to, during, and immediately after his drinking spells, his manner is in such marked contrast with the sober periods that he has been thought to be insane and crazy by several persons well acquainted with him That his conduct during these drinking spells is marked by strange extravagances On one occasion he took a bear in a buggy for a drive On another occasion, on Christmas Day, in one of his saloons, then well patronized, he ordered the customers and bar-tender out and locked the place up, and was seemingly unable to give any good reason therefor On another occasion he shot at a colored man twice, in order, as he stated to the bystanders, "to show them how to kill a nigger" On another occasion he wished to erect a tank in the back yard and to hire a high diver to dive off the adjacent building That about seven years ago he became acquainted with a married woman who had left her husband in California and was

¹ Lawson's Criminal Defenses Insanity and Drunkenness

visiting in Chicago, and from that time until about the month of May 1895 he lived with said woman in open adultery and in said May (while in one of said drinking spells) went with her to the city of Milwaukee where he was married to her by a justice of the peace that from that time until November 9 with the exception of a short interval he lived with her as his wife that on or about said November 9 she left him and did not again live with him, that during the month of September, for a period of about ten days he drank excessively and had an attack in which he was found wandering dazed about the hall of a hotel between 2 and 3 o'clock in the morning that at the end thereof he remained sober attending to his usual vocation as a saloonkeeper until on or about November 9, when one of his drinking spells began continuing until his arrest on November 19 1895 that during Thursday, Friday, Saturday Sunday and Monday night he was very restless and unable to sleep that frequently during these times he would go about his room with a frightened look, and try the doors and windows apparently to see that they were locked and fastened and while so doing would carry a revolver in his hand and during the time that he was lying in bed constantly kept said revolver within his reach. That he some hours before the homicide, drank much intoxicating liquor, that about 1 o'clock of the day of the homicide at a messenger service he asked for a messenger boy and sent a note to his wife—the boy failed to find her and did not deliver the message, that still later he sent another note which was not delivered that afterwards, at his saloon he drank more liquor that at or about 4 o'clock of said day he left his saloon and went to where his wife then was with her sister and rang the bell of the flat adjacent to the door of the flat where his wife was whereupon his wife, accompanied by her sister, went to the door of their apartments opened it and said 'Hello Brother' and he replied 'Don't touch me.' That he had his hand on his right overcoat pocket, that his wife went ahead and he followed her to the front parlor, that she said, "Here are those keys that he said "When did you stay with that white livered — — —" that she replied 'I never did' that he then said 'Tell me or I will kill you' that she said 'I never did' that then two shots were heard, when the sister ran down to the street crying for help, whereupon certain persons from the street visited said parlor and found the wife lying dead from the effects of two pistol wounds, that one of the windows in the room was broken apparently by the revolver, from which the said fatal shots were fired, being thrown through it. That he, after said homicide, went down the back stairs through the alley, to the rear of his saloon and drank liquor that he was in his saloon when the policeman entered it and said 'We want you' and at the same time the officer placed his hand upon him and he replied 'What do you want me for?' and the policeman replied 'I guess you know' That he was then taken without resistance in a patrol wagon to a neighboring police station that when received at the police station he was searched and some articles of personal property taken from him among them a diamond pin, that when that was removed he said to the officer in charge, 'It is a valuable pin—take good care of it—it is worth \$150' That when asked 'Where is the gun you used?' he replied 'I have used no gun' That then he asked to wash himself and was shown to the wash room where he washed his face and hands that after doing so he looked at himself in the mirror and while so doing stroked his mustache On the following morning on his way to the inquest, he asked where he was being taken and stated to the officer in charge that he wanted a continuance

This evidence was admitted by Drs Harriet C B Alexander, H M Bannister, J A Benson, H N Moyer, J C Spray, and myself, to be sufficient to establish the existence of dipsomania. This psychosis was defined by all these physicians as a periodical insanity characterized by an irresistible craving for alcohol or narcotics during certain periods preceded and followed by mental change in the individual affected. These periods are intermingled with periods of sobriety. The alcoholic element was regarded by all as a mere manifestation determined at the outset of the periods. The victim of dipsomania, in the opinion of all, would be insane during the drinking periods even if alcohol were not used. The position of the defense on the status of dipsomania in nosology was essentially that of Krafft-Ebing, Ritti, Spitzka, Kraepelin, and Schuele. The demarcation made by the experts for the defense between dipsomania and drunkenness was essentially that of Lagrain,¹ thus given recently:

An alcoholic patient becomes insane because he drinks, a dipsomaniac is insane before he commences to drink. Dipsomania may be complicated by alcoholic symptoms, but alcoholism never leads to dipsomania. Alcoholism is an intoxication which has as its cause alcohol, dipsomania has its cause in a defective mental condition, and alcohol is but a secondary factor which may be replaced by any other poison leaving to the syndrome all its psychological characters. Dipsomania proceeds in paroxysmal attacks, and the appetite for strong drink is absent during the intervals between the attacks. Alcoholism has no definite course—its development depends directly upon the more or less considerable or prolonged consumption of alcohol.

The hypothetical case, it should here be stated, included, in accordance with the usual system of Judge Russel M Wing, the chief counsel for the defense, just sufficient evidence to justify the diagnosis of the mental state, of the amount of will-power, and of the specific psychosis. The case as presented to the jury contained other factors less incriminatory to the accused and other evidence more strongly demonstrating defective heredity and dipsomania. The State pursued the opposite policy: all evidence implying insanity was omitted from its hypothetical case, it presented also a mutilated copy of the hypothetical case of the defense to its experts. With two exceptions the experts for the defense just named were not subjected to much cross-examination. Drs Archibald Church, Sanger Brown and Richard Dewey appeared for the State. They answered that the subject of the hypothetical case of the State was sane, as every expert for the defense would have done. They also

¹ Tuke's Psychological Dictionary

stated that the hypothetical case of the defense had been presented to them and that the subject of it was sane. On cross-examination, Dr Church gave the same symptoms of dipsomania as those presented by the hypothetical case of the defense, whereupon it was presented to him in its entirety. To it, Dr Church answered that the person of that hypothetical case was insane with the type of insanity called dipsomania, that his knowledge of right and wrong was doubtful, and that he was the victim of an irresistible impulse. Drs Sanger Brown and Dewey substantially agreed with Dr Church on cross-examination. The position of all three as to the nosological status of dipsomania was identical with that of the experts for the defense. The position of Drs Dewey and Brown as to the individual of the hypothetical case of the defense was less emphatically expressed, but was practically identical with that of Dr Church, the results of whose cross examination, naturally under the circumstances, strongly influenced the jury. No examination of the accused was made by the experts on either side. The jury was left to decide as to the validity of the two hypothetical cases. On the first ballot the jury stood six for hanging to six for acquittal on the ground of insanity, on the second ballot five for hanging to seven for acquittal on the ground of insanity, the third ballot resulted in a vote of eight for acquittal on the ground of insanity. The jury then agreed on a verdict acquitting the accused on the ground of insanity, conditional on the Court committing the accused to an insane hospital as a still dangerous lunatic. The Court declined to assume such powers, although permitted to do so by the Illinois criminal code. The jury then attempted to find the accused guilty of manslaughter so that he could reach an insane hospital through a penitentiary. Four, however still sturdily voted for acquittal on the ground of insanity. The jury was then discharged unable to agree.

The jury was clearly convinced that dipsomania was a well defined form of insanity and that the subject of it was so dangerous as to require permanent insane hospital treatment. As there was a "hanging" epidemic among juries just precedent to this trial, it must be obvious that even under disadvantageous circumstances the seemingly dangerous defense of dipsomania can be successfully made scientifically before an intelligent jury. Furthermore, the case shows that the pure hypothetical method of presenting evidence is far more just and clear to a jury than when combined with the fact of examination. Examination of an accused person often is a wild absurdity unless the physician have the clinical history. In

court the clinical history cannot be used, as it is practically hearsay evidence. The jury is hence confused, since a conscientious expert, used to legal procedures, will, in accordance with his oath, exclude all but the results of his examination, while the omniscient professional swearer will, in defiance of all laws of evidence, testify to the results of hearsay as facts resultant on examination. Fact witnesses and opinion witnesses should hence in the interests of justice be separated. This the Chicago Academy of Medicine, the Chicago Medico-Legal, Pathological and Medical Societies tried to do by a bill presented to the last Illinois Legislature. This bill, as finally passed, was so emasculated in the interest of certain omniscient medical politicians, the vampires of the courts, as to destroy its essential features and convert it into a new piece of patronage machinery for judges.

I have not dwelt on the time-dishonored mob-law right-and-wrong test, since it, under the decision in the case of *Hopps vs the People*, can only be used by trick and device of the State's attorney in Illinois.

Certain clinical data are lacking in the case which from the psychiatric standpoint are of especial interest. The aimless insane performances during puberty suggest that cerebral automatism which occurs in periodical types and affiliates these to epileptic mental manifestations. It would be of interest to know whether these performances passed at a later date, as seems probable, into the rather suggestive acts of the "drinking spells," and hence were an expression of a degenerative defect which would be accentuated into irregular periodicity after the age of twenty-five (the expiration of puberty), but masked by alcohol. It has been claimed by Laségue and others that dipsomaniacs never manifest the symptoms of alcoholism. This clinical criterion, as Legrain points out, is erroneous, since many cases are on record where dipsomaniacs, even if their attacks did not last a long time, showed symptoms of alcoholic poisoning—excitement, tremor, delusions, nightmares, hallucinations, etc. That at the expiration of some of the "drinking spells," alcoholic mental states were present, seems clear from the hypothetical case above cited, which also suggests that the individual at the time of the homicide was in a most forensically dubious alcoholic mental state, which, according to testimony of those present at the coroner's inquest, lasted even till then, days after. This testimony was omitted from the hypothetical case of the defense, intentionally, on the system already described.

Identity of dipsomania and voluntary drunkenness was claimed

by the State, but this claim was upset by its own experts Dr Sanger Brown, for example, took the position that the voluntary drunkard is a sane man who drinks, while the dipsomaniac is an insane man who drinks

Dr Harriet C B Alexander, an expert for the defense, took the position, on cross examination, that even during the sober period the legal responsibility of the dipsomaniac was dubious, and in the event of crime the burden of proof of sanity rested upon the State This position, from the ordinary legal standpoint of responsibility, is essentially sound It is in full accord with that recent decision of Judge Harlan of the United States Supreme Court which wiped out of existence the demagogic decisions of the State Supreme Courts which have held that the prisoner must prove his insanity beyond a reasonable doubt—decisions inconsistent with abstract justice and anarchically inconsistent with that fundamental principle of the criminal law of English speaking countries, that every one must be presumed to be innocent until proven guilty

The State's attorney cross examined Dr Alexander and myself as to the forensic bearing of the language used at the time of the homicide on the question of will power and premeditation The answer was that taken alone it was purely negative in value, and taken in conjunction with the other factors of the hypothetical case it had no significance, corroborated by other facts bearing on the existence of will power, it might be of value This position was based on the fact that delusional threats and suspicions are often uttered during alcoholic, post periodic, and epileptic mental states of which the utterer has, at the best, but a dazed consciousness The answer was further based on the broad scientific principle that intelligent acts do not legally or medically offset distinct evidence of insanity Dr Alexander was cross examined most at length, and myself next although I should hardly call it cross examination The policy of the State in this particular was due to the sensible plan of avoiding errors in the record

The difficulty encountered by the jury in their disposal of the case must be felt by every thinking alienist Some act embodying a modification of the English "commitment pending Her Majesty's pleasure," suitable to other English speaking countries seems desirable Another desideratum in the interests of justice is a modification of State statutes which put a premium on judicial murder by paying fees for conviction to State's attorneys

GUMMA OF THE HYPOPHYSIS ¹

BY DR LUDWIG HEKTOEN, CHICAGO

In hereditary syphilis the hypophysis may be enlarged and indurated because of connective-tissue proliferation ²

In acquired syphilis, gumma of the hypophysis has been described by Troisier,³ Weigert,⁴ Barbacci,⁵ Birch-Hirschfeld,⁶ and Sokoloff ⁷ In these cases there cannot be much doubt concerning the truth of the diagnosis In Troisier's case the origin of the gumma is referred to the capsule of the hypophysis Boyce and Beadles⁸ detail a case of granulomatous infiltration of the hypophysis which they regard as tuberculous, but without having shown tubercle bacilli to be present The same uncertainty of diagnosis is attached to Wagner's⁹ case of "tubercle of the pituitary," which he observed in a thirteen-year-old girl who was otherwise free from tuberculosis

The following case of gumma of the hypophysis consequently merits report on account of the rarity of the lesion

The patient, a woman of 45, died the same day she entered the hospital, without being able to give any information concerning her history The post-mortem was made twenty-four hours after death

The anatomical diagnosis reads "Chronic interstitial nephritis, chronic peri-hepatitis and peri-splenitis, syphilitic cirrhosis of the liver, with gummata, gumma of the hypophysis, thick skull, chronic interstitial myocarditis."

Bacteriological examination showed the heart's blood, the lung, the liver, the kidney, and the spleen to be sterile

Only the liver and the hypophysis need to be described at this time The liver, weighing 1570 grammes, was attached by firm and fibrous adhesions to the diaphragm, especially along the falciform ligament, superficially irregular throughout, in the vicinity of this ligament it was marked by puckered cicatricial depressions, in the bottom of which the tissue was firm and whitish, the consistence of the organ was firm, and on its cut surface was observed an irregularly arranged increase in fibrous tissue, which was particularly

¹ Read before the Chicago Pathological Society, May, 1896

² Lancereaux, *Traité Historique et Pratique de la Syphilis*, 2d edit, Paris, 1873 p 288

³ *Bull de la Soc Anat*, 1874 t XLIV, p 25.

⁴ *Virchow's Archiv*, 1875 bd 65, p 223

⁵ *Centralbl für Allg Path und Path Anat*, 1892, iii, p 301

⁶ *Path Anat*, 1894, bd 1 p 281

⁷ *Virchow's Archiv*, 1896, bd 143 heft 2

⁸ *Journal of Pathology and Bacteriology*, vol 1, No 3 p 359

⁹ *Archiv für Heilkunde*, bd 11 1862

marked about the insertion of the falciform ligament—here in the hepatic substance were whitish nodules or areas enclosed in puckered capsules of fibrous tissue from which trabeculae radiated in all directions, larger, homogeneous districts were also present. The hypophysis, about twice the usual size, was firm, rather homogeneous, and grayish red on the cut surface, the walls of the sella turcica were rough, the hypophysis weighed 1.8 grammes.

The skull, which was plagycephalic, was unusually thick, measuring, at the line of the incision to remove the calvaria, from eight to ten millimeters in thickness, its bone being very dense, the diploe almost entirely absent or replaced by compact tissue.

Microscopic examination of the hypophysis showed that the entire organ was the seat of a diffuse round-cell infiltration, throughout which were scattered numerous multinucleated giant cells. Only in a few places were indistinct remnants of follicles present. A few irregular areas of necrosis were observed, in which the substance was homogeneous or finely granular. Blood-vessels were sparse, and their walls often diffusely infiltrated. There were no miliary tubercles at the periphery of the mass. Under high power the nuclei of the cells were seen to be oval, spindle-shaped, and stained but lightly, or smaller, round, and deeply colored. Irregular shaped nuclei were also present. The giant cells showed the protoplasm to be red (eosin), finely granular or homogeneous, the nuclei being heaped up mostly at the periphery. Large, distinctly epithelioid cells were not present. The ground substance was homogeneous or finely granular, with but slight fibrillation. In the distinctly necrotic districts were nuclear fragments of all shapes and sizes. Eight slides were examined carefully and repeatedly for tubercle bacilli (carbol fuchsin), but with negative results.

The liver showed marked thickening in Glisson's capsule, with areas of diffuse cell infiltration in which were giant cells, and encapsulated necrotic districts, most marked near the surface of the organ. There were no tubercles in the sections, and tubercle bacilli were not found.

From this examination it is believed that the diagnosis of gumma of the hypophysis is justified upon the following grounds:

1. The absence of typical tubercles and of tubercle bacilli, the structure being that of a degenerating granuloma.
2. The presence of a distinctly syphilitic process in the liver.
3. The absence of tuberculosis in all the organs ordinarily examined in a thorough post mortem.

In this case the gumma was not large enough to give rise to

any symptoms In Birch-Hirschfeld's case (*loc cit*) the walnut-sized gumma gave rise to pressure symptoms

The present case is the only one associated with evident increase in the thickness of the skull, and this association may very likely have been only accidental

Gumma of the hypophysis is of evident clinical importance, because the consecutive pressure effects ought to be removable under appropriate anti-syphilitic treatment

THE PRESENT STATUS OF ECTOPIC PREGNANCY A SURGICAL DISEASE ¹

BY W G MACDONALD M D ALBANY N Y

The surgery of ectopic pregnancy is mature rather than old. The pathology and principles of treatment are already established. Yet women are dying every day from ruptured ectopic pregnancy, with no effort being made to rescue them, because the condition is not recognized during life.

The reason lies principally in the fact that much of the literature has been controversial, abstract, and involved. Pathology and methods of treatment have obscured the most important general topics of clinical history and diagnosis. Favorable results are more desirable than fine pathological distinctions or beautiful frozen sections. All that is needed to complete the chapter of ectopic pregnancy in the history of surgery, is a lively appreciation of its importance by the general practitioner—a condition which happily obtains in appendicitis.

What is required is a primer on ectopic pregnancy, direct in pathology, clear in diagnosis and definite in treatment. Such a compend would perhaps not be absolutely true in all its statements, but it would state general truths as a basis for action. The more descriptive pathology is involved by the expression of opinion and of contentions the less it is likely to create distinct conclusions. There is no symptom pathognomonic of ectopic pregnancy at any period of its history. Diagnosis only follows careful study of the clinical history, and painstaking physical examination.

There are two general propositions which should be generally appreciated in the diagnosis of ectopic pregnancy. First. Any woman who, during her child bearing period, presents herself with symptoms of disease of the organs of generation, of recent origin, either new or entirely different from those previously experienced, if associated with any of the early symptoms of pregnancy, demands at once a careful examination. Second. Abdominal pain, either continuous or intermittent (colic) is always an important symptom, and requires the fullest investigation as soon as the complaint is made. Anodynes without examination are a too frequent source of death in abdominal disease.

The treatment of ectopic pregnancy is surgical. Exceptions

¹ Abstract of a paper read before the Section on Obstetrics and Diseases of Women American Medical Association, May 1896.

are to be decided by the consultant or operator. Treatment is to be undertaken as soon as the diagnosis is established. Much sentiment has been wasted and many valuable lives sacrificed in order that a deformed or paralytic child might arrive at a period where there was a little hope that it might live after delivery.

Many cases require emergency surgery and immediate operation. All cases of rupture of the interstitial variety belong to this class. The first condition to be met in operation is the immediate and complete control of hemorrhage. The other steps may be completed more deliberately. Here, as elsewhere, every effort is to be made to close the abdomen after the complete removal of the diseased gestation sac, ruptured Fallopian tube, blood, and placenta. Ideal conditions seldom present themselves. A rational conservatism in the prevention of shock and hemorrhage will often lead to the employment of expedients, such as sutures of gestation sac to the incision, or gauze tamponade with secondary suture. Saline transfusion, either direct or intermediate, is more valuable than cardiac stimulants in the treatment of shock with hemorrhage.

Complete tubal abortion, if diagnosticated, will seldom call for surgical intervention. The fetus is expelled into the abdomen, dies from the rupture of its membranes and hemorrhage, and is absorbed. Many broad-ligament pregnancies get well under a purely expectant plan of treatment. There is no hope of convincing the few remaining advocates of electricity of their error, and admonition does no good.

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AN ANOMALOUS FORM OF PROGRESSIVE MUSCULAR ATROPHY

BY HAROLD N. MOYER M.D. CHICAGO

Adjunct Professor of Medicine Rush Medical College.

A M—— aged 30 by occupation a laborer, presented himself at the clinic for nervous and mental diseases at Rush Medical College. He stated that his father and mother were both living, the father being well, but the mother suffering from chronic heart trouble, three sisters and one brother were all enjoying good health. About ten years ago he gradually lost strength in his hands. There was no pain and no inflammatory disturbance—simply a progressive weakness largely confined to the grasp of the hand, but which for several years was not sufficient to seriously interfere with his work. Four years ago he first noticed a slight loss of strength in the legs, which came on also without pain, though there were occasional cramps in the toes which were painful.

Examination shows no disturbance of sensation nor impairment of the muscular sense. He stands with eyes closed without swaying, and can walk a straight line. The pupils react readily to light and accommodate to distance, and there is no narrowing of the fields of vision. The knee jerk is abolished in the right leg and is doubtfully present in the left. Although the extensor and flexor muscles of the forearm are very much weakened, he can by great effort extend the fingers to the full extent and has just sufficient power to close the hand, but can exert scarcely any force in so doing. There is marked wasting of the muscles of the forearm, but no apparent atrophy of the interosseus muscle or of the thenar and hypothenar eminences. Supination and pronation are very weak, the latter somewhat stronger than the former. The muscles of the shoulder are well developed, being full and rounded. There is absolutely no impairment in the strength of the triceps and biceps muscles, nor in those of the shoulder girdle. The thighs, buttocks and back are normally developed and act with the usual strength. The calves are much wasted, the anterior tibial muscles are greatly weakened, and on the left side he cannot flex the foot against its own weight. He is able to do this on the right side, but with very marked loss of power.

There is very marked asymmetry of the head. He is a mouth breather, has a high arched palate and is of comparatively feeble intelligence. These same degenerative stigmata are present in the brother who accompanies him.

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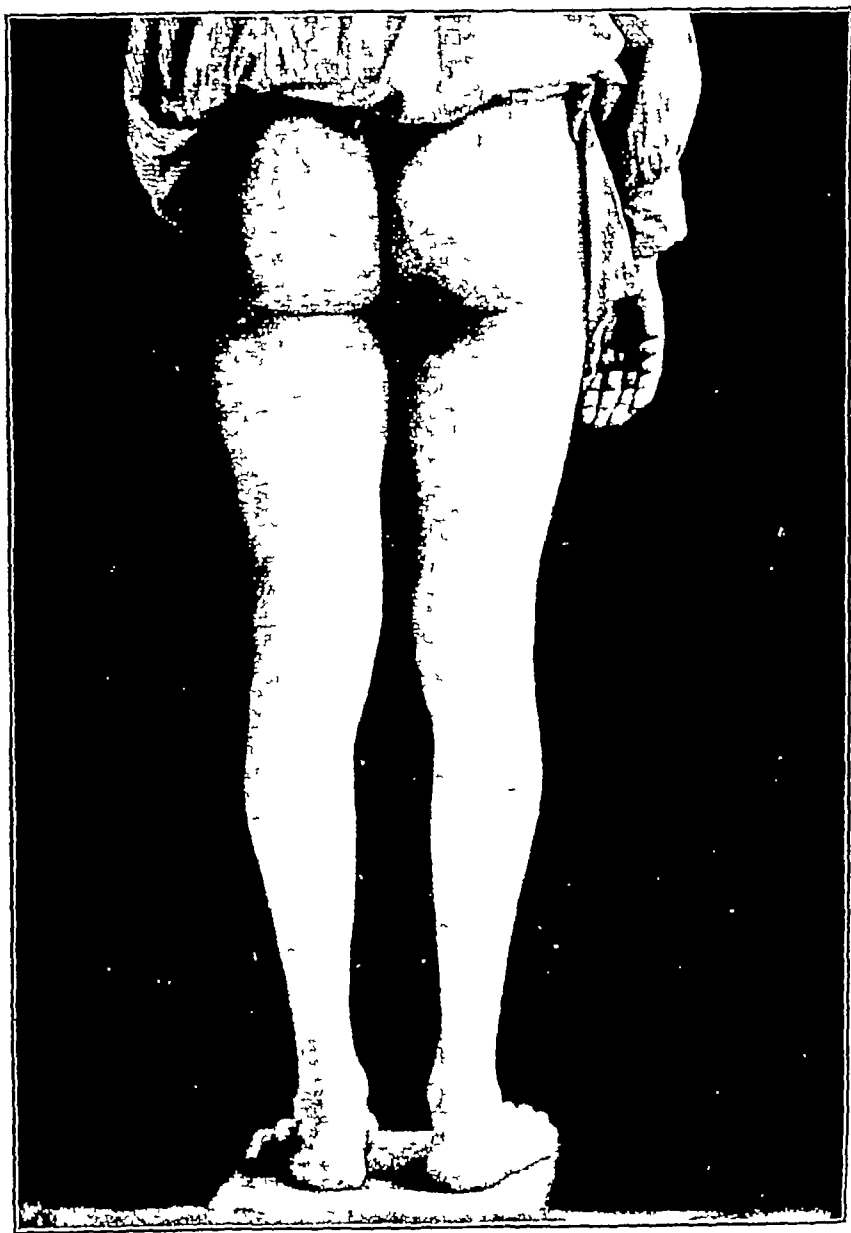
Adjunct Professor of Medicine Rush Medical College

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There is very marked asymmetry of the head. He is a mouth breather, has a high arched palate, and is of comparatively feeble intelligence. These same degenerative stigmata are present in the brother who accompanies him.

We are led to report this case as it is somewhat unusual in our experience. The slow, insidious onset of the malady, and the invasion of single groups of muscles, undoubtedly place it in the clinical group of progressive muscular atrophies. We have not, however, observed a similar case, nor have we found such described in the literature accessible to us. A reference to this history shows that the atrophy is absolutely confined to the forearm and legs, the thighs, arms, feet and hands having escaped. The wasting is equal



in both hands, and nearly so in the legs. The extensors and flexors are about equally involved. There are no sensory disturbances and no change in local temperature. Fibrillary contractions were not noted, and there was marked diminution in the reaction to the faradic current.

This case cannot be included in the ordinary forms of progressive muscular atrophy, because of the anomalous muscular grouping. It is difficult to understand how the disease could be so sharply limited to the forearms and legs, unless we assume separate foci of infection, and such limitation is not consistent with the progress noted clinically in most of these cases.

The case bears a striking resemblance to the leg type of progressive hereditary muscular atrophy of Charcot Marie. While there is no evidence of a similar disease in other members of the family, in this instance it began in early life the patient probably being no more than twenty years of age when the disease commenced. In the Charcot Marie type the disease begins in the legs. In this case it began in the arms. Aside from the order of progression, the appearances presented by the atrophied muscles are exactly like those noted in the former affection. The disorder sometimes spoken of as the peroneal form of progressive muscular atrophy, begins commonly in the leg, not the foot, it then involves the peronei, extensors of the toes and calf muscles, only late in the disease are the upper extremities attacked.

The accompanying drawing taken from a photograph, shows the atrophy of the calf muscles.

BOOK REVIEWS.

A MANUAL OF ANATOMY By Irving S Haynes, Ph B , M D With 132 half-tone illustrations and forty-two diagrams Philadelphia W B Saunders

This modest volume belongs to a series of works issued by an enterprising and intelligent publisher, whose efforts are worthy of the great popularity with which they have been favored

Dr Haynes has really presented a manual of anatomy—a book to be used in actual study of the cadaver Most of the descriptions are adapted to dissection, the parts being studied in the order in which they are raised from the body The use of the photograph is to be commended in general It is only to be regretted that the work was not undertaken more seriously, and a more elaborate method of reproduction employed than the half-tone process The beautiful autotype reproductions in Spalholz's new work on anatomy might be equaled or surpassed in Mr Saunders's printing-rooms It is to be hoped Dr Haynes will return to the effort at another time, with an ambition to accomplish something more elaborate

Although the photograph is useful to the more advanced student, it cannot altogether take the place of the pen-and-ink drawing which enables the artist to discard confusing details Poirier's new work, now being issued, is a model in this respect, the artist having produced a series of drawings which are a delight to the eye and which are so clear that the veriest beginner must clearly understand the form, size and relation of the parts

The text of Dr Haynes's work is well written, clear and concise Indeed, we can only say of the book, as Sam Weller wished his sweetheart to say of his love-letter "We vish there vas more of it"

AN INTRODUCTION TO PATHOLOGY AND MORBID ANATOMY By T Henry Green, M D , F R C P , Physician and Special Lecturer on Clinical Medicine at Charing Cross Hospital, and Physician to the Hospital for Consumption and Diseases of the Chest, Brompton Seventh American from Eighth English Edition Revised and enlarged by H Montagu Murray, M D , F R C P With 224 engravings Philadelphia Lea Brothers & Co 1895

This edition presents many improvements as compared with the older ones New illustrations have been added, and an effort has been made to bring the book thoroughly up to date

Green's Pathology has always maintained a certain peculiar degree of popularity as a text-book, and this must be ascribed to the absence of competitors and to the small requirements demanded by teachers and students of pathology, especially in this country Where larger and scientific works, like Thoma and Ziegler, have gained entrance, it is hard to see how Green's book can be of any use But where the requirements are still elementary—where it is the intention to merely impart a disconnected smattering of knowledge of the fundamental principles of pathology—one can see that this edition of Green's book may find place

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DIAGNOSIS AND TREATMENT OF DISEASES OF THE RECTUM ANUS AND CONTIGUOUS TEXTURES By S G Gant, Professor of Diseases of the Rectum and Anus, University and Woman's Medical Colleges, Kansas City F A Davis Co Publishers, Philadelphia and 9 Lakeside Building Chicago

This work is the result of an effort to give to the practitioners and students of medicine a concise yet practical work." It is 400 pages long, and is illustrated with sixteen chromo-lithographic plates The book is written for readers not too cultivated in pathology on the one hand or the refinements of the English language on the other Still a large amount of information is presented, and if the volume be studied carefully and with some powers of elimination, many useful facts can be gleaned from it But at a time when the surgery of the lower bowel has reached a point at which, apparently, it must stand for a while it seems a pity that a new book on the subject should not be produced to bring the whole matter down to date, leaving out showy pictures of all kinds and superfluous childish descriptions and dealing minutely and thoughtfully with the great facts in this department of surgery An excellent chapter on colotomy has been contributed to the book by Mr H W Allingham, who has also some pages on cancer of the rectum

The author has introduced a somewhat ectopic chapter on Auto-infection from the Intestinal Canal And a novelty is a discussion of 'Railroading as an Etiological Factor in Rectal Diseases

PROGRESS OF MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF JAMES B. HERRICK, A.B., M.D.,
Adjunct Professor of Medicine, Rush Medical College, Attending Physician to the Cook
County Hospital, Chicago

A Remarkable Case of Calcareous Degeneration —

At a meeting of the Medico-Chirurgical Society of Edinburgh, Feb. 5, 1896, Dr. Byron Bramwell (*The Lancet*, Feb. 15, 1896) read a paper on "A Case of Calcareous Degeneration of the Heart and Arteries, with Rapidly Developed Subcutaneous Tumors in the Axillæ, Elbows, Groins, the Nates, and Popliteal Spaces," with symptoms suggestive of Addison's disease, in a young man, aged 25, affected with advanced cirrhosis of the left kidney, the right kidney having been completely destroyed fourteen years before by pyelonephritis. When seen by Dr. Bramwell the patient was anemic and greatly emaciated, abdomen dark-colored, no pigmented patches on the buccal mucous membranes, radial and brachial arteries rigid and thickened, heart-sounds almost inaudible—a soft systolic murmur at the base, there was slight albuminuria, hard, brawny swellings were present in the axillæ, bends of the elbows, groins, folds of the nates, and popliteal spaces—these swellings were dense and firm, like calcareous matter or bone. The asthenia rapidly increased, the skin became darker, the temperature rose, the heart became rapid, the radial arteries grew absolutely rigid and pulseless and could be traced up to the elbows as firm cords. Pericardial friction developed.

At the autopsy the infiltrated areas seemed to the naked eye to be densely fibroid, and cut with a gritty sensation due to calcification. The arteries were calcareous, with the exception of a part of the aorta, carotids, and vessels of the brain. The peripheral nerves were healthy. There was recent pericarditis. The cardiac enlargement was chiefly of the left ventricle. The papillary muscles and columnæ carneæ showed calcareous incrustation. The right kidney was but a small mass of fibrous tissue, the left kidney was cirrhotic.

Microscopic examination showed in the muscular wall of the heart calcification of the individual cells. The most striking points in the case were (1) the calcareous degeneration of the heart, the

interstitial tissue and muscle fibres being calcified, (2) the occurrence of the symmetrical swellings due to fibrous hyperplasia with calcification, (3) the condition of the arteries, almost unique, as regards the calcification at the time of life of the patient, (4) the condition of the kidneys, the right having been entirely destroyed during childhood, and the left being in an advanced stage of degeneration—the absence of kidney symptoms was therefore extraordinary. The calcareous matter circulating in the blood, and not being excreted by the degenerated kidneys, had become deposited in the organs and subcutaneous tissues. The condition must have come on rapidly, the swellings having first appeared within six weeks of death.

Gout Due to Lead Poisoning —

M. Luethje publishes (*Zeitschr für Klin Med*, bd XLIX, p 266) a long and exhaustive article on gout due to lead poisoning. Among the conclusions which he arrives at, the following are the most important.

1. There can be no doubt of the close connection between lead poisoning and gout.

2. It is probable that the lead alone, without the influence of any other etiological factor, can produce gout.

3. The lead intoxication has no influence on the excretion of uric acid. The power, therefore, of the lead to produce gout cannot be explained through a uric acid retention and the accumulation thereby of uric acid within the blood. The fact that with lead poisoning an unusual amount of uric acid is found in the blood, is to be explained only by a hyperproduction of the uric acid. In what way the lead produces this change cannot now be explained. Lead apparently has the power to cause a "gouty necrosis."

4. In order that there shall be an outbreak of gout, a long period of intoxication is necessary.

5. The clinical course of lead gout shows several peculiarities different from those of an ordinary gout. (a) The attack occurs, as a rule, in an individual relatively young. (b) Lead gout has a tendency to spread rapidly over many joints of the body. (c) The localization of the joint affection has the peculiar characteristic that frequently joints are attacked which in the ordinary gout are never or but rarely, affected. (d) The tendency to tophi formation and deformative changes is, in lead gout, much more marked than in common gout.

6. The prognosis of lead gout is always unfavorable.

Gonorrheal Malignant Endocarditis —

W Hale White, in *The Lancet* of February 29, 1896, adds another case of malignant endocarditis caused by gonorrhea, to the already somewhat lengthy list

A male, 19 years of age, was admitted to Guy's Hospital with irregular, pyemic temperature, chills, sweats, and anemia Typhoid, malaria, pus-collection, "neurotic temperature," were each successively excluded The development of a to-and-fro murmur over the third left costal cartilage led to a diagnosis of acute malignant endocarditis of the pulmonary valve, which diagnosis was confirmed post-mortem Blood, blood-casts and albumin were explained by an acute tubal nephritis with many ecchymotic spots A recent gonorrhea was regarded as the probable cause of the endocardial inflammation This supposition was confirmed by the detection of gonococci in the vegetations No organisms were found in the blood during life

White, in commenting on the case, says that at Guy's Hospital "we have one case a year of right-sided malignant endocarditis, and for every four times the tricuspid valve is affected the pulmonary is implicated once "

He further calls attention to two clinical facts that he has noted in this case and others of malignant endocarditis (1) when the temperature was raised, the pulse and respiration were not increased, (2) albuminuria, hematuria with casts, edema and uremia are not uncommon in cases of this character, and may be the immediate cause of death

Clinical Value of Elsner's Method of Diagnosing Typhoid Bacilli —

Lazarus (*Berliner Klin Woch*, 1895, No 45, p 1068) has made a clinical test of Elsner's method of diagnosing typhoid bacilli He adds one per cent of potassium iodide to Holz's acidulated potato-gelatin Upon this medium the bacterium *coli* develops rapidly, forming at the end of forty-eight hours coarsely granular brown colonies The typhoid bacillus, on the other hand, grows more slowly, the colonies at the end of forty-eight hours appearing like small, glistening drops of water with very minute granulations

The stools of five patients with typhoid gave positive results during the first, second and third weeks of the disease After the subsidence of fever, bacilli were occasionally found, in one case as late as forty-one days after defervescence Repeated examinations are necessary, as negative results were shown at times to be false by positive findings at a second examination In one case of typhoid,

where remittent fever persisted the bacilli were found in the stools even up to the ninth week. Negative results were always obtained in patients suffering from non typhoidal disease of the intestines

Physiological Albuminuria —

Zeehuisek, of Amsterdam reaches the following conclusions after examining the urine of 144 supposedly healthy young individuals (*Centralblatt für Innere Medizin*, Jan 11, 1896) His examinations were made from the standpoint of the clinician and only that substance was regarded as albumin that was coagulable through heat

1 Many cases of albuminuria in young people (5 per cent. in the 144 cases) are caused by affections of the renal parenchyma

2 In another series of cases the albuminuria in the young is of extra renal origin, i.e. accidental (red blood-corpuscles, leucocytes, spermatozoa, etc.)

3 Functional albuminuria was not observed in the 144 cases examined

4. In the persons examined no trace of a "physiological albuminuria" was discovered (In 71.5 per cent of the 144 cases the most delicate reagents failed to disclose the faintest trace of albumin)

SURGERY

UNDER THE CHARGE OF WELLER VAN HOOK, A.B. M.D.,

Professor of the Principles and Practice of Surgery Northwestern University Medical School, Chicago

Surgical Anatomy of the Middle Meningeal Artery —

The *Annals of Surgery* for May, 1896, contains a research on the surgical anatomy of the middle meningeal artery by Dr S. C. Plummer, which is a model of careful study of a somewhat intricate subject. It is to be regretted that space will only permit our giving the conclusions reached

1 That the course and distribution of the middle meningeal artery are subject to wide variations

2 That after the artery leaves the foramen spinosum, there is no location at which a portion of the main trunk or one of its terminal branches has a constant and defined position, except where the anterior branch crosses the spheno-parietal suture on to the anterior inferior angle of the parietal bone

3 That a trephine opening one inch in diameter made immediately back of any portion of the coronal suture will almost invariably reach the anterior branch or a branch of it

4 That in a great majority of cases there is a main trunk of the artery within the cranium

5 That the anterior branch may be derived from the orbital branch of the lacrymal branch of the ophthalmic

6 That the parietal bone is supplied to slightly greater extent by the anterior than by the posterior branch

7 That the blood-supply to the dura mater traverses as many and as pronounced curves as that to the pia mater

8 That while there is a tendency to symmetrical arrangement on the two sides of a given skull, the exceptions to this are so numerous that we can make no practical use of this symmetry

9 That in the majority of cases the anterior branch is enclosed in a canal at the anterior inferior angle of the parietal bone

10 That, in locating the anterior branch, that site is most advantageous which reaches it high enough to prevent its escaping in case it originates from the orbital branch, and to expose or lie above the orbital branch when it exists merely as a communicating branch, and which involves the bony canal and the ridge along the lower end of the coronal suture least frequently

11 That for locating the anterior branch, Kronlein's method is the most advantageous

12 That no method will locate the posterior branch with much certainty

13 That in locating the posterior branch, one must carefully avoid the region of the lateral sinus

14 That Steiner's method is the most advantageous for locating the posterior branch

15 That we have in the Hartley-Krause osteoplastic flap the only method fulfilling all the requirements for an ideal exposure of the middle meningeal and its branches

16 That shutting off the circulation of the middle meningeal extra-cranially is an essential step in the performance of Rose's operation for the removal of the Gasserian ganglion

Direct Laryngoscopy—Catgut Sterilization —

Bruns's *Beiträge zur Klinischen Chirurgie*, vol xv, heft 3, contains a commendatory article by Professor Bruns on the subject of Kirstein's direct laryngoscopy and its application in endolaryngeal diseases and their treatment Professor Bruns remarks that he has

in years gone by used a method very similar to this in the lower animals for the demonstration of the movements of the laryngeal muscles to students, and wonders that he could have failed to make application of the method in the human subject at that time. He believes that while this method of laryngoscopy has very strict and narrow limitations, it will be of the utmost service in the cases to which it is adapted. He reports cases in which he used the method with striking success. He objects to the name for the method which was proposed by Kirstein, *auto-laryngoscopy*, which of course, according to usage in medical terms, signifies a method for the inspection of one's own larynx.

The same number of Bruns's *Beitrag* contains an article on catgut sterilization by means of boiling in water subsequent to hardening in formalin. The method would seem to possess great advantages, if future study of the material thus supplied demonstrates its fitness for clinical purposes. The method is as follows:

- 1 Soaking of the raw catgut, wound carefully but tightly upon spools, in a 2 to 4-per cent solution of formalin for twenty four to forty-eight hours. Carefully avoid air bubbles sticking to the catgut under the formalin solution.

- 2 Washing of the catgut in running water for twenty four hours.

- 3 Five to ten minutes boiling in an abundance of water.

- 4 Subsequent hardening or preservation in absolute alcohol, with the addition of 5 per cent of glycerin and any desired anti-septic.

Taxidermy upon Appendicitis Patients —

Dr Robert T. Morris (*American Medico-Surgical Bulletin*, May 9, 1896) publishes an article on 'Taxidermy upon Appendicitis Patients.' By taxidermy he means the free use of iodoform gauze, intending of course to ridicule the method which is usually employed to drain the abdomen in cases of this kind. He prefers a simple drain of wicking, surrounded by gutta serena tissue to prevent adhesions to the peritoneum. Dr Morris will not find the majority of experienced surgeons in accord with him in this practice. He is furthermore, an advocate of operation in all cases of infective appendicitis as soon as the diagnosis is made.

Oxygen after Ether —

Dr Theophilus Parvin writes in the *Medical and Surgical Reporter*, April 4, 1896, on the use of oxygen after ether. He says

that, having observed the practice of Dr Landau of Berlin, who has his patients inhale pure oxygen after the ether has been withdrawn, he is convinced that the practice is a most useful and valuable one. He says the immediate effects of inhaling oxygen are the dusky hue of the face disappears, and the pulse becomes fuller and slower, there is also a more rapid recovery of consciousness. On the day subsequent to the operation he several times visited these patients at the physician's request, asking them as to the freedom from vomiting and pain, and the invariable reply was that they had neither. Some cases treated in this way at Philadelphia made similar statements in regard to their experience of its effect.

PATHOLOGY.

UNDER THE CHARGE OF LUDVIG HEKTOEN, M D,

Pathologist to Cook County Hospital, Chicago,

AND

E R LE COUNT, M D,

Demonstrator of Anatomy and Pathology, Rush Medical College, Chicago

Tumor of the Pituitary Body in a Case of Acromegaly —

W L Worcester describes (*Boston Medical and Surgical Journal*, April 23, 1896) an autopsy made on the body of a woman aged 70 who died at the Danvers Lunatic Hospital with well marked signs of acromegaly. The scalp was nearly half an inch in thickness, and the skull was also unusually thick, with greatly enlarged frontal sinuses, extending considerably above the line of section. The brain weighed 1170 grammes (38 ounces), and apart from soft consistency, probably due to the length of time since death, seemed healthy. The pituitary body was much enlarged and rather soft, of a grayish color and smooth surface. It weighed 5.8 grammes (88½ grains), and measured 4.6 centimeters in its longest diameter. The heart was dilated and hypertrophied, weighing 540 grammes (17¼ ounces). The viscera seemed otherwise healthy.

Microscopical examination of the enlarged hypophysis showed it to be composed of spindle-cells, supplied with quite numerous thin-walled blood-vessels, and containing numerous calcareous nodules of concentric structure—the so-called brain-sand. Not a trace of the normal structure was to be found.

He sums up the subject of hypophyseal hypertrophy in the following terms:

“Autopsies on cases of acromegaly have not been very numerous, but enough, it seems to me, have been reported to refute the

hypothesis advocated in various quarters, that the enlargement of the hypophysis in acromegaly is, like the other hypertrophies, merely a symptom of the disease. Sternberg¹ has collected reports of nineteen cases, classified as follows: Hypertrophy (Fritsche, Klebs, Cepeda) 3, hypertrophy with increase of connective tissue (Holsti), 1, sarcoma (Wolf, Caton, Paul, Strumpell), 3, adenoma (Marie-Marinesco, Arnold), 2, softened adenoma (Linsmayer), 1, tumor with little cavities lined with epithelium (Wolf), 1, glioma (Bury), 1, tumors, character not specified (Verga, Henrot, Lance-reaux), 3, vascular hypertrophy (Brigidi), 1, colloid degeneration (Fratnich), 1, sclerosis and atrophy (Beuard), 1, necrosis with softening (Claus, Van de Stricht), 1."

In addition to the foregoing he has found reports of the condition of the hypophysis in six cases:

Squance (*British Medical Journal*, Nov. 4, 1893) pituitary body hypertrophied, no report of any histological examination.

Dana (*Journal of Nervous and Mental Diseases*, November, 1893) weight of hypophysis 4.5 grammes, "apparently somewhat cystic."

Lathuray (*Lyon Méd.* 1893, p. 445) pituitary body very large and softened.

Bonardi (*Arch. Ital. de Clin. Med.*, 1893) no tumor of hypophysis.

Tamburini (*Centralblatt für Nervenheilk.*, v, p. 625) tumor size of a hen's egg, structure somewhat similar to that of the normal gland; septa very few and thin; little alveolar structure.

Sigurini and Capociosco (*Rif. Med.* xi, p. 107, 1895) large round celled tumor.

He classifies his own case as one of sarcoma with psammomatous degeneration.

If simple hypertrophy were the constant lesion of the pituitary body in these cases, it might be plausibly claimed that it was a result and not a cause of the disease, but it hardly needs argument to show the improbability that any one disease would cause in a single organ, so many and various morbid conditions as are above enumerated, having nothing in common except alteration of structure.

Congenital Cystic Degeneration of Both Kidneys —

Burckhardt (*Indiana Medical Journal*, March 1896) reports the case of a male child born after a tedious labor, in which the obstruction was caused by an enlarged abdomen on the part of the infant,

¹ *Zeitschr. für Allg. Med.* vol. xxvii, 1895, p. 86.

that, having observed the practice of Dr Landau of Berlin, who has his patients inhale pure oxygen after the ether has been withdrawn, he is convinced that the practice is a most useful and valuable one. He says the immediate effects of inhaling oxygen are the dusky hue of the face disappears, and the pulse becomes fuller and slower, there is also a more rapid recovery of consciousness. On the day subsequent to the operation he several times visited these patients at the physician's request, asking them as to the freedom from vomiting and pain, and the invariable reply was that they had neither. Some cases treated in this way at Philadelphia made similar statements in regard to their experience of its effect.

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who was 19 inches long, and measured 19 inches round the abdomen. The child lived about twenty-five minutes after birth. On opening the abdomen two tumors presented, measuring $6\frac{1}{2} \times 3\frac{1}{2} \times 3\frac{1}{2}$ inches, completely displacing the abdominal viscera and crowding the diaphragm upward. The lower pole of the tumors was connected with the urinary bladder by thin (0.3 millimeter in diameter) tubes. The kidney blood-vessels proceeded directly from the abdominal aorta and vena cava inferior to an irregular basin covered by the cysts, which proved to be the *undilated* pelvis of the kidneys. The left tumor only showed a small portion of parenchymatous tissue, the rest was transformed into cyst substance. The contents of the cysts was a clear, urine-like liquid. The supra-renal capsules were enlarged, but normal. The heart was not enlarged, the walls of the ventricles were of normal thickness. The brain showed a considerable dilatation of both lateral ventricles.

Microscopical examination of a small piece of the kidney tissue gave the following results. Imbedded in the considerably hypertrophied connective tissue a few of Malpighi's glomeruli could be seen, some of them about four times as large as normal glomeruli, and showing the normal histological aspect of these organs, but the convoluted blood-vessels could only be distinguished with difficulty, as they were partially decayed into a homogeneous mass, showing very large nuclei. The uriniferous tubes belonging to them were relatively more enlarged than the glomeruli themselves, they ended finally blind in the connective tissue, their lumen being of unequal width—sometimes enlarged, sometimes almost obliterated. The epithelial lining was composed of abnormally enlarged epithelial cells.

Cysts of varying diameter were found in those parts of the specimen that were taken from the surface of the tumor. The smaller ones were filled up with granular masses, similar to degenerating epithelial cells, as found in the glomeruli. The larger cysts were filled with a gelatin-like homogeneous mass. Both the larger and smaller were surrounded with an epithelial capsule closely resembling Bowman's capsule, the epithelial cells here also were enlarged, and contained very large nuclei.

The diagnosis, according to examination, must be congenital inflammation of the kidneys, with obliteration of the uriniferous ducts and cystic degeneration of Malpighi's glomeruli. The question whether we have to deal with an inflammation of the true kidneys or of one of the primitive kidneys, or the Wolffian bodies, remains open to discussion.

BACTERIOLOGY

UNDER THE CHARGE OF GEORGE H. WEAVER, M.D.
Demonstrator of Bacteriology, Rush Medical College, Chicago

Animal Life without Bacteria in the Intestinal Canal —

Two communications have recently appeared which demonstrate the fallacy of the idea that bacteria are essential to the proper digestion of foods in the stomach and intestine.

G. Nuttall and H. Thierfelder (*Ztschr für Physiolog. Chemie*, bd xxi, hefte 2-3) have described some exceedingly interesting experiments upon guinea pigs. The young pigs were removed by Cæsarean section, with all aseptic precautions, and placed in a sterile case which was protected perfectly from contamination from without. They were then fed upon sterile milk, and the cage was ventilated with air previously freed from all bacteria. Eight days after birth the animals were removed from the apparatus, killed, and examined with all antiseptic precautions. The microscopic examination of the intestinal contents in stained and unstained preparations showed an entire absence of bacteria. All roll cultures, both aerobic and anaerobic, remained sterile—not a single colony was observed. The authors conclude that the presence of bacteria in the intestinal canal is not necessary for the life of guinea pigs, nor for other animals or man, at least not so long as the nutriment is purely animal.

Nencki (*Verh., No. 7, 1896*) also tries to prove that the action of micro-organisms is unnecessary for the normal process of digestion. He repeated the experiments above related, and concludes that micro-organisms in food are only hurtful and not in any way beneficial.

Whooping-cough Parasites —

M. Kurloff (*Centralbl für Bakt.*, 1896, bd xix, p. 513) records the results of some observations in connection with the sputum of whooping cough, especially in reference to its etiological bearing. Under the microscope he found only a few neutrophilic cells, instead of these were cells with a single nucleus and without granules, corresponding to the lymphoid elements of the blood. In the eight cases examined, he only once found bacilli in strings corresponding to those described by Afanassiew. In the fresh sputum while it was still clear mucus, he found ciliated bodies, varying in size up to that of red or white blood-cells. The cilia were situated on the sides at

the central portion, and were longer in the centre than at the ends of the rows. The organisms were actively motile if kept on a warm stage. They were stained by carbol-fuchsin. In the later stages of the disease, when the sputum consisted largely of pus-cells, the ciliated bodies were found with difficulty. Abundant refractive bodies, of varying sizes, were found, and if the sputum was kept in a damp chamber for a day or two amœboid bodies developed. The author does not decide that there is a relation between the ciliated bodies, the cells, and spores. The bacteria found in the sputum he considers of importance only as causes of secondary processes.

Hereditary Tuberculosis —

Bolognesi (Thèse de Doct., Paris, Nov. 6, 1895) has examined for tubercle bacilli the placenta from thirteen tubercular women, and in several cases the organs of the fetus. Once tubercle bacilli were found in the blood of the mother. In eight cases where the fetus was born dead, or died in a short time, the organs were examined histologically and by inoculation of animals for tubercle bacilli. One hundred and nineteen guinea-pigs were inoculated with the various materials, and also eleven rabbits. Of these, two guinea-pigs inoculated with a placenta from one case died. From these results, together with the experience of former workers, the author concludes that the inheritance of tuberculosis from the side of the mother is usually a disposition ("*hérédoprédisposition*"), while the direct transfer of the bacilli ("*héréd contagion*") occurs but rarely. This latter may take place (1) if there is milary tuberculosis of the mother, with tubercle bacilli in the blood, (2) if there is placental tuberculosis which has produced such lesions that the passage of the bacilli is no more prevented, (3) if there is uterine tuberculosis which favors the occurrence of placental tuberculosis, (4) if the amniotic fluid contain bacilli and be swallowed by the fetus.

THERAPEUTICS

UNDER THE CHARGE OF N. S. DAVIS, JR., A. M., M. D.,

Professor of the Principles and Practice of Medicine and of Clinical Medicine, Northwestern University Medical School, Chicago

Thyreoid Feeding in Stupor —

Dr. C. K. Clark (*Canadian Practitioner*, October, 1895) states that he was impressed with the results obtained by Drs. McPhail and Bruce in the treatment of mental cases by thyreoid extract. The cases selected for early treatment were all of well marked stupor.

where the outlook had become unfavorable, if not hopeless. The cases cited are only a few among many experimented upon, but are characteristic. A decided reaction was sought for, and the dose of thyreoid regulated by the tolerance of each patient. He is certain that thyreoid extract, as a therapeutic resource, is of value in such cases, although more extended clinical research will be necessary in order to select the patients most likely to be benefited by the treatment. It would be a great help if the use of the extract could be made less empirical. He thinks cell-nutrition is undoubtedly affected in a striking manner and increased metabolism occurs as the result of quickened circulation. The autotoxic process, so frequently present in cases of mental disease, is interfered with in a way that may be beneficial.

The first case cited is that of a male, 20 years of age, of previous active, temperate habits who had twice been insane before the present attack, the cause of which was influenza. There was marked heredity. The insanity had existed two weeks before admission, at which time he was dull, impassive, and showed no signs of intelligence, hesitating to answer questions, and exhibiting the general appearance of dementia and profound melancholy. During his previous residence in the hospital his mental condition had been much the same, and he recovered after an attack of typhoid fever. For one month he was given thyreoid extract in increasing doses up to twenty grains, three times daily. His mental condition improved, but he complained of nausea and thirst. He became very talkative, had lost flesh and was weak. There were fibrillary twitchings of the upper extremity and face, the arterial tension was diminished, he complained of headache. Examination of the urine showed a specific gravity of 1.022, an acid reaction, with a trace of albumin, but no sugar. Five days later the albumin had disappeared and he was gaining in flesh. Two days later he suddenly relapsed to a condition of complete stupor to return to the old dirty habits. A month later no improvement was noted, if anything he was worse, and it appeared as though there was no permanent gain from the treatment.

The second case was that of a man 35 years old, whose previous habits and health had been good. He became insane in January, 1894 the exciting cause having been financial trouble. When admitted, his physical health was very poor, circulation sluggish, and he was in a stuporous condition. In January, 1895, his bodily health had improved, but mentally he was unchanged, the dirty habits having continued. On January 14 the thyreoid treat

ment was commenced, patient's temperature being 97.3° , pulse 79, and respiration 19, the urine was amber-colored, specific gravity 1.026, with markedly acid reaction, abundant phosphates, but no albumin or sugar. Five grains of thyreoid were given at noon and at night. On January 23 a decided reaction was noted, morning temperature reached 100° , pulse 97, and respiration 20, although the evening temperature of that day showed only 99.4° , with a pulse of 113, and respiration 28. He had improved mentally, answering questions quite readily, but was very nervous at all times, and his judgment was defective. On January 29 the dose was increased to twenty grains, three times daily, with but little change in the pulse, temperature, or respiration. There was steady improvement mentally, he answered questions promptly, and said he felt better. His face often became flushed, his tongue was coated, and there was quite marked constipation. On January 31 it was noticed that there was drooling of saliva, and that he had slight nausea and vomited after dinner, he also complained of headache. On February 1 the thyreoid treatment was discontinued. February 20 it was noticed that he was still improving, and on March 1 he was gaining in flesh, ate and slept well, and was improved mentally. Three weeks later he was discharged recovered.

The third case was that of a woman, aged 21, native of Scotland, with marked hereditary tendency, who was admitted in November, 1894, at which time she had been insane two months. She was found to be in poor physical health, pupils dilated, and face congested. She had a staring look, refused to converse, and was in a half-dazed condition. At times she was excited and erratic and inclined to be violent, although it was impossible to get her to converse. At all times the element of stupor was prominent. The skin had a greasy appearance, and the patient ceased to menstruate immediately after her admission. She was placed upon tonic treatment, and every possible effort was made to build her up, but without success. About the middle of January the case began to appear hopeless. There was not the slightest improvement following the different methods of treatment employed, and the patient seemed to degenerate. Her weight was 120 lbs., temperature 96.4° , pulse 85, respiration 16, when the thyreoid treatment was commenced. Ten grains were given three times a day, which dosage was on January 30 increased to twenty grains. The temperature at this time was 100° , pulse 120. February 3 the temperature was 98° , pulse 100, and respiration 18, patient talked quite rationally and was interested in her surroundings. The reaction from the thyreoid was very

marked, and she was evidently on the way to recovery February 4, thyreoid was discontinued, as the patient began vomiting, and the temperature ran to 100°, pulse 120, with marked irregularity. The mental improvement continued until February 9, at which time she showed a tendency to relapse, was somewhat stupid and inclined to be impulsive. She was immediately put to bed and given a cathartic, with prompt improvement from which time she went on steadily to recovery. On March 18 her weight had increased to 130 lbs, and on the 25th she was discharged recovered.

A fourth case was that of a woman, aged 34—puerperal melancholia with stupor. She was admitted in September, 1894, having been insane five weeks, her delusions were characteristic of this form of mental disease, and there was a marked degree of stupor as well as a certain amount of excitement at the time of admission. In December, 1894, in spite of persistent tonic treatment she became worse and the stupor more pronounced, at this time her habits were dirty. On January 24 she was given fifteen grains of thyreoid, three times a day, weight, 102 lbs. January 30 her temperature reached 99.4°, pulse 100, and respiration 18, with marked improvement in habits. February 4 the temperature was 99°, pulse 80, respiration 17, she stated that she felt better though she was quite restless. The treatment was discontinued and she was given iron, quinine, and *nux vomica*. On February 9 she sat up, talked rationally, and wrote to her friends. On April 10 she was sent to her friends on probation. On May 29 she was reported better and seemed to be getting along nicely at home although not completely restored mentally.

The writer thinks that these investigations in thyreoid feeding in mental disease, and especially in the cases associated with stupor, are the first that have been recorded in America, and open up a field for clinical research that must prove of great interest. Certain it is that the cases which the author cites, and which are here quite fully abstracted suggest a possible range of usefulness for this plan of treatment which is exceedingly important. Heretofore such cases have been the opprobrium of asylum practice, for the most part they sink into hopeless dementia and it is impossible to rouse in them any interest in their surroundings or to improve their physical condition. It is to be hoped that other institutions will take up this work and that we shall soon be able to form a correct estimate of the value of this treatment in these apparently hopeless cases.

The Cause and Treatment of Flatulence.—

Stephen McKenzie, in the *Practitioner* for July, 1895, gives a practical discussion of this subject. He states that a certain amount of air is swallowed in the process of mastication and deglutition, but this has never produced any of the phenomena associated with flatulence. This condition is also attributed to fermentation occurring in the stomach, but he does not believe the gas of flatulence is the result of food-fermentation, for fermentative processes are too slow for the rapid development of the flatulence observed in dyspepsia.

Sir William Roberts has shown that a certain amount of flatulence may occur in acid dyspepsia through the action of an acid mucus upon the alkaline saliva swallowed with the food, but this is certainly a rare and minor cause in the production of gas. The regurgitation of carbonic acid gas from the duodenum may sometimes occur, and cause a flatulent distention of the stomach, but this is also a rare phenomenon and only occurs when the gastric juice is hyperacid.

The writer, after discussing other theories, concludes that flatulent dyspepsia is due to a lack of gastric tonicity. In other words, the wall of the stomach, being weak, flabby, and lacking in tone, suddenly dilates, and a volume of gas which was before somewhat compressed expands and fills out the enlarged viscus. The gas does not increase in quantity in the stomach, but only in volume. Associated with this gastric atony and perhaps dilatation, there is often a slight catarrhal condition of the stomach which lessens the power of normal gastric digestion and helps also to weaken the walls of the stomach.

The most important thing in the treatment of flatulent dyspepsia is to use remedies which will increase the nervous vigor, hence tonics, and especially nerve tonics, are of the greatest importance. Nux vomica and strychnine should be placed at the head of the list. When there is gastritis associated with flatulent dyspepsia, with a coated tongue, the author gives bicarbonate of soda, strychnine, and spirit of chloroform, dissolved in a bitter infusion of calumbo or gentian, two ounces three times a day, between meals. If pain is associated with the flatulence, bismuth is added to the mixture, or a pill containing carbolic acid, valerianate of zinc and alum is given. The compound asafetida pill and the extract of belladonna are sometimes useful. In cases where pain is located lower in the bowels, Indian hemp in doses of one-third of a grain often answers better than any other remedy. For the violent spasmodic attacks which these sufferers often have, associated with distention of the stomach

and-intestines, a mixture is given composed of equal parts of spirit of cajuput, aromatic spirit of ammonia, and spirit of chloroform, a teaspoonful in a wineglass of water every half or quarter of an hour

The writer does not believe in the use of charcoal in flatulence, nor does he place great stress on the value of bismuth. The purpose of his paper is, he says, to urge the importance of tonics and antispasmodics as the rational and effective treatment of flatulence by improving the muscular tone of the stomach

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN A.M. M.D.,

Professor of Clinical Gynecology in the College of Physicians and Surgeons Chicago
Professor of Gynecology in the Post-Graduate Medical School etc

Phlegmasia Alba Dolens —

J. H. Raymond, M.D., read a carefully prepared thesis upon this subject before the Brooklyn Gynecological Society at a recent meeting, and provoked a long and interesting discussion from the distinguished members present. Widely different theories of pathology and methods of treatment were advocated, and the deduction is obvious that there is more than one successful way of dealing with this affection.

Some extracts (*Brooklyn Medical Journal*) will serve to give a portion at least of the views of the essayist.

"*Symptoms* — A typical clinical picture of puerperal phlebitis presents the following characteristics. Evidence of disease appears ten days or more after confinement, there may have been a slight evening rise of temperature from the beginning of the puerperium, and during this time the patient may have appeared somewhat restless or anxious, with a flush on one or both cheeks, the pulse also may have been somewhat accelerated but there has been scarcely enough in the woman's condition to attract her physician's attention. After a varying but considerable length of time, with the premonitory symptoms just described, or with none at all, the temperature rises high in twenty four or forty eight hours, a chill sometimes, but not usually, preceding the fever. The pulse is rapid, out of all proportion to the temperature, there is a dusky flush on the cheek or cheeks, and patches of red may appear on other parts of the body, particularly on the chest. The tongue is very foul. The patient has an anxious troubled, restless look, but if questioned may reply that she feels perfectly comfortable or if she feels ill she

cannot complain of any localized pain or discomfort. The abdomen is not distended, nor is it usually at all sensitive to pressure. A vaginal examination is entirely negative. The disease, once begun, runs a most tedious course. I have attended two patients who were seriously ill, with high fever, for four months, and I think a woman lucky whose illness is not protracted beyond three weeks. Another most distinctive feature in the course of the disease is the tendency to complete remission of the fever and of all other symptoms for more than a week perhaps, then there is a recurrence of high fever, rapid pulse, and profound prostration—in short, a reappearance of all the old symptoms in their original intensity, but the relapse does not often last long. I have seen such a relapse recur three times in an individual who had been ill three months before the first remission.

“A delicate question in practice is that of the getting up of lying-in patients who have had phlegmasia. Two dangers are to be avoided. The one consists in a premature getting up before the clots are absorbed, walking movements might favor a new attack of phlebitis or cause a still more grave accident—the migration of a part of a clot, which might be fatal. It is generally toward the fortieth day after the cessation of the febrile symptoms which commenced at the same time with the phlegmasia that one can permit, with some precautions, the patient to get up. The other danger consists in keeping the woman in bed for several weeks and months for fear of the terrible embolism. It is especially in these conditions that supervene stiffness of the joints and trophic troubles more or less marked. One of us has recently observed, with Pinard, two women, one of whom was in bed for more than six months after the cessation of a double phlegmasia, while the other was on a mechanical bed three months after a triple phlegmasia which had attacked the two lower limbs and the upper right one. These women rapidly recovered by the mobilization of the joints, by massage of the limbs, by the use of electricity, and by baths.

“Finally, let us remember that certain forms of phlegmasia are accompanied by periphlebitic suppurations, which must be opened like ordinary abscesses.

“A useful precaution in women who have had phlegmasia consists in wearing for a certain time an elastic stocking coming up to the root of the thigh. It is the best means of preventing the consecutive edemas which sufficiently often are accompanied by intermittent pains.”

Prof J M Van Cott, Jr, has summed up the pathology of phlegmasia in the following words

'Phlegmasia alba dolens' is, according to the consensus of opinion of the best English speaking and German pathologists, to be regarded as a periphlebitis of the vena saphena magna of septic origin, and accompanied with thrombosis of the vein which does not antedate the periphlebitis but is concomitant, and is so 'phlegmon' of the soft parts of the thigh.

"This conclusion is based upon two facts, namely:

"1 The histology of the vein and peri-venous sheath of connective tissue.

"2 The fact that septic inflammation may obtain in structures widely separated from very small wounds of the vagina, cervix, or vulva which may form the starting point of a puerperal sepsis, with scarcely any local evidence of infection at or about the wound."

"Treatment—The treatment of puerperal phlebitis is summed up in a short sentence. Abstention from local interference, and the freest possible use of stimulants and food. Any attempt at intra uterine disinfection will make the patient distinctly worse. There is imminent danger of causing metastases or hemorrhage by local interference. In one of my patients an intra uterine douche was followed by a chill, and within twenty four hours by suppurative pleurisy. In another the temperature rose to 106.8° after cleansing the uterine cavity. This, indeed, is a diagnostic feature of considerable value, and is occasionally the only way to distinguish between sapremia and phlebitis, as the following clinical history proves. I saw in consultation a lady who had been delivered three weeks before. She had had a temperature of about 101° for two weeks, her pulse was rapid, there was profound prostration and one of the most distinguished physical diagnosticians of Philadelphia had the day before detected an incipient septic pneumonia. The abdomen was flat and not tender. The uterus was well contracted and perfectly movable. There was a slightly bloody discharge without odor. All this looked very much like phlebitis. I thereupon disinfected the uterine cavity, however, and within twelve hours the temperature fell to normal, the signs of pneumonia disappeared and the patient made an uncomplicated recovery. Had this case been one of phlebitis, as it seemed to be, my local interference would have made the woman much worse. But in spite of this risk I always carry out one thorough disinfection of the womb, even in a case in which I feel pretty certain of the diagnosis of phlebitis. The clinical history just related is sufficient for such a rule of practice.

Having established the diagnosis of phlebitis, and having shown the futility of local disinfection, my routine treatment is as follows

"Milk, predigested if necessary, and predigested beef at regular intervals and in as great quantities as the patient can digest, whiskey, as near a pint a day as she can stand, or, if necessary, champagne in larger quantities, digitalis for the rapid pulse, and quinine and iron for the bowel. The patient is kept in bed for at least ten days after all symptoms disappear

"*Prognosis* —In spite of alarming symptoms and long continuance, the disease should end in recovery in the vast majority of cases. I have only lost one of my cases of phlegmasia and two other cases of phlebitis, a mortality of about 10 per cent. Among the women who recovered were some as desperately ill as I ever saw, so that I approach a case of this kind with considerable confidence as to the result "

Ichthyosis Uteri —

Emil Ries, M D, Chicago, in the *Medical Standard* for March, 1896, contributes an article on this subject. Gebhard's hypothesis is that there are two different series of cases with stratified epithelium, the one kind always remains limited to the surface—simple ichthyosis, the other kind has a tendency to penetrate into the subjacent tissue and form cancerous nests. Until recently we had no possible means of distinguishing these two different kinds without seeing the terminal stages of the process. Pfannenstiel's definition is therefore more valuable for practical purposes. Pfannenstiel says "Not every case of stratified epithelium in the cavity of the uterus should be considered indicative of carcinoma, but the stratified epithelium found in the cases of squamous epithelioma of the uterine cavity must be considered the preliminary stage of the cancer, just as a glandular hypertrophy of the mucous membrane of the uterus, non-malignant in itself, can be the preliminary stage of adenocarcinoma." Dr. Ries would therefore lay down the following rules

The clinical symptoms of ichthyosis are not sufficiently clear to enable us to base a diagnosis on them. Discharge and light hemorrhage, the usual symptoms of ichthyosis, can as well be produced by cancer of the body and several other conditions as by ichthyosis

If we scrape out a uterus, and examine the scrapings microscopically, we may find only the stratified epithelium. We are then not enabled to give a diagnosis of cancer or of ichthyosis, but must

reserve our diagnosis if the epithelium itself does not contain some further clues as to the nature of the disease. In a case which was observed by the author he found no layer below the epithelium, still he was able to give the diagnosis of cancer, because in the middle of the stratified epithelium he discovered distinct cancerous pearls. In other cases irregular karyokinetic figures may strengthen the suspicion of cancer so far as to justify hysterectomy. Pyometra has been observed in quite a considerable number of squamous epitheliomata of the body of the uterus, and this pathological condition in itself may render hysterectomy necessary if microscopical examination does not enable us to diagnose cancer.

In other cases the curette procures sufficient tissue for a precise diagnosis. If we find the stratified epithelium limited to the surface or penetrating only into the mouth of the glands, the diagnosis must be ichthyosis. We must however, always frequently observe these patients for some time because we do not know that the ichthyosis will not undergo metamorphosis into cancer.

If, on the contrary, the microscope reveals cords of pavement epithelium penetrating into the tissues of the mucous membrane, or even into the muscular wall of the uterus, the diagnosis must be one of cancer, and speedy removal of the uterus is indicated.

Squamous epithelioma of the uterus does not necessarily originate in previous uterine ichthyosis, but squamous epithelioma of the cervix may spread over the mucous membrane of the body, as in cases described by Benckiser and Hofmeier, or the cancrroid of the body may be a metastasis of the cancrroid of the cervix, as in a case described by Pfannenstiel.

To the cases originating in the cavity itself, as described by Piering, Gebhard, Löhlein, Flaischlen, and Emanuel, Ries adds the two cases above described. By the connection established by recent researches between cancrroid of the body and ichthyosis, the latter has gained an importance formerly unthought of. The subject deserves the full attention of the microscopist as well as the gynecologist, and tends to show again that the latter cannot do full justice to his specialty if he is not also a microscopist.

Aspiration of Fluid in the Cul-de-sac of Douglas after Laparotomy for Large Pelvic Tumors which Necessitate Extensive Injury to the Peritoneum —

Duret, of Lille (*La Semaine Médicale*, 1895, No. 40), says that in cases in which the peritoneum has been extensively wounded in removing a tumor, it is necessary to prevent the accumulation of

fluid in Douglas' cul-de-sac, otherwise sepsis is liable to ensue and produce death in from twenty-four to thirty-six hours without any rise of temperature or any vomiting

The ordinary drains frequently do not work in the peritoneal cavity Mikulicz's method renders good service in many cases, but is not sufficient to carry off the secretions when they are very abundant, and has to be supplemented by a drain in the vagina The author has recently tried aspiration according to a method employed by Lawson Tait In two cases which showed signs of beginning septicemia after the removal of large tumors, the Mikulicz drains were removed and the fluid aspirated by a hydrocele syringe every four hours for two or three days Both cases recovered

PEDIATRICS

UNDER THE CHARGE OF W S CHRISTOPHER, M D,

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Results of Thyreoid Treatment in Sporadic Cretinism —

Frederick Peterson and Pearce Bailey give (*Pediatrics*, May 1, 1896) an account of seven cases of myxedematous idiocy treated at the Vanderbilt Clinic and Randall's Island Hospital for Idiots One of the cases was a Negro Of the four treated at the Clinic, two were much improved, one disappeared, and one was probably cured

In addition to their own cases, the authors append a table of forty cases, which includes most, if not all, of the cases of sporadic cretinism, treated with thyreoid, which have been reported with sufficient detail to render them valuable for statistical purposes From this summary it appears that under thyreoid treatment the symptoms of myxedema disappear from the child quite as readily as from the adult In none of the cases quoted did the general edematous symptoms fail to yield to the remedy, when it was properly and sufficiently applied The skin became soft, the swellings disappeared, and the whole appearance of the patient was completely changed

The carrying out of the treatment of myxedema is attended with fewer difficulties and dangers in children than in adults Toxic symptoms have been observed in a few cases only, and but two have died under treatment Of these, one died of intercurrent diphtheria and one of bronchitis, in neither of these two cases was the treatment regarded as a causative factor of the fatal symptoms

In addition to the disappearance of the symptoms from the skin and subcutaneous tissues, the treatment of sporadic cretinism has in some cases met with brilliant results by permitting a return of development and growth to children in whom these functions had been limited or arrested by the disease. But although marked changes in the mental and physical condition of cretins have occurred, it yet remains to be reported that these cases become the physical and intellectual equals of children who have never had myxedema.

Improvement consequent upon a return of development has been more constant in the body than in the brain. A large number of the reported cases have grown considerably taller and have acquired sufficient power and control of the limbs to enable them to walk, which had previously been impossible. The teeth, which have been absent or defective begin to appear normally.

Intellectual progress has been neither so constant nor so rapid. In nearly all the cases there has been noted some mental improvement, but in only a few has the power of speech been acquired when it previously had been absent.

The occurrence, in the formative period of infancy and childhood, of a disease which attacks fundamentally nutrition, development, and growth, has much more disastrous effects than when its appearance is delayed until the organism has reached maturity.

And while it is possible that the removal of causes inhibitory to growth may result in a gradual return of developmental processes, the thyroid treatment of infantile myxedema has in no case been carried out for a sufficient length of time to permit the assertion that such will be the case. We have been able to find no case in which treatment is reported to have lasted more than a year and a half, and of no case is it said that the patient was in all respects, cured. But from the fact that in nearly all of the cases treatment was not instituted until the child was several years of age and had developed but little or not at all for a considerable length of time, several years would be necessary by the natural processes of development, for the complete re-establishment of normal growth.

Although data sufficient to justify positive assertions are lacking, it seems entirely in the range of possibility that if the treatment of sporadic cretinism were begun at the outset of the disease, before growth was seriously interfered with, it would permit the proper development of the child, without myxedematous symptoms, as long as thyroid was administered.

These questions must find their solution in the future when the thyroid treatment shall have been used for a time sufficiently long to justify conclusions as to the extent and permanency of its value.

Nephritis of the New-born —

A Jacobi, in an address delivered before the Medical Society of the District of Columbia (*New York Medical Journal*, Jan 18, 1896), gives us an excellent study of these conditions. He finds that the connection of the kidneys with derangements in early life is very important. These organs are so intimately interwoven with the whole physiological existence that either their anatomy or their function participates in every disease of every organ. This is particularly perceptible in the infectious diseases, no matter whether mild or severe. In many of them one of the forms of nephritis is very common. In scarlatina, for instance, the desquamative process is quite active in the uriniferous tubes, and results in a peculiar form of inflammation, in some cases of scarlatina and most of the other acute eruptive and infectious maladies it is parenchymatous changes that are more frequently met with. Thus, indeed, it is worth while to study the urine in every case of disease. It is true that we are not always rewarded with the finding of severe lesions, for, happily, most of the cases of secondary nephritis are neither dangerous nor of long duration. But there is none of them but may lead to a severe form, with possibly a fatal termination. Therefore the frequency of infectious diseases in infancy and childhood ought to fix our attention constantly in the direction of the kidneys. It is true that sometimes we are unable to find anything but albuminuria, which, in the absence of kidney elements under the microscope, we are liable to dismiss as transient and of little account. But in this we are very apt to be mistaken. The cases of uncomplicated and transient albuminuria have become wonderfully scarce since the author invariably employs the centrifuge for urine-examination. Among twenty successive cases where the verdict is "trace of albumin" he is certain to find in the centrifuged deposits of nineteen, within a few minutes, the most uniform result—blood-cells, hyaline casts, hyaline casts studded with epithelia, or finely or coarsely granulated casts.

He gives a careful study of the relation of intestinal disorders to nephritis, pointing out that the former conditions are often but symptomatic of the latter.

Nephritis, says the writer, is a frequent disease of infancy and childhood and by no means very rare in the new-born. What was formerly considered mere albuminuria, or a transient form of it, we have been taught by improved methods of investigation, mainly by the use of the centrifuge, to recognize as nephritis. A predisposition to nephritis in the young is caused by the fragility of the blood-

vessels in the new born by the relative imperviousness of the young renal capillaries compared with the large size of the renal arteries, by the feebleness of the young intestinal muscle, which proves insufficient to expel toxic contents by the extensiveness and size of the young intestinal blood vessels and lymphatics and the large size of the villi, all of which favor the absorption of toxins

From an etiological point of view, nephritis in the new born may be

1 *Congestive*—from feeble circulation, congenital heart disease, asphyxia, or exposure to low temperatures

2 *Obstructive*—from the physiological rapid decomposition of the blood of the new born the formation of hematoïdin (bilirubin), jaundice, the production of methemoglobin by chemical poisons, such as potassic chlorate, or by excessive heat, or the presence of blood in the uriniferous tubes

3 *Irritative*—from the presence of uric acid infarctions or hematoïdin infarctions, of purpuric or other interstitial hemorrhages, or of microbes and toxins in the numerous eruptive and infectious maladies and in enteritis

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.

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Hysterical Spasm of the Muscles of the Trunk —

Since the days of Charcot the investigations of no observer into the realm of "the great neurosis" have been so fruitful as those of Janet. Heretofore he has confined himself principally to the mental processes involved in hysteria and their relation to its manifestations, but he has recently shown himself to be a *bon observateur* of somatic signs, as well as of psychic phenomena, by calling attention (*La France Médicale* Dec 6, 1895) to a symptom which he says is not rare but which has been scarcely mentioned by writers on this subject. This is a contracture of sundry or nearly all muscles of the trunk, including the diaphragm. Lannelongue, Duret, Vic and others have noted curvature of the spine induced by hysterical contracture of the dorsal muscles, but Janet alludes particularly to a contracture, often acute in onset, of the abdominal, lumbar, or thoracic muscles, which may give rise not only to great pain and vicious attitudes, but to various respiratory and digestive disturb-

ances, so that the affection may easily be mistaken for some visceral disease. He details eight illustrative cases

The first was a young sailor, who was very slightly injured by a cask rolling upon him. After the accident he remained "doubled up," and all the flexors of the trunk were contracted, any attempt to straighten him increased the tenseness of the contracted muscles and caused great pain. At the end of a month there was no change, when Janet saw him, and one séance of hypnotism accomplished a permanent cure—contrary to the rule, as the author is careful to state

Case 2 is similar. A man, aged 22, fell down stairs and slightly bruised his back. He remained in bed a month, and then was found to have the abdominal muscles strongly contracted, a tender back, and inability to straighten himself

Case 3, female, aged 32, a pronounced hysteric, was apparently attacked by some acute affection. She complained of headache, lumbago, and respiratory oppression. The face was pale and drawn, lips dry, tongue pasty, respiration apparently difficult and 45 per minute. The patient had a constant dry cough and was covered with perspiration. Although the physical examination was negative, the pulse only 75, and the temperature 100.7° , a diagnosis of bronchitis or perhaps grip was made, and the patient treated accordingly. At the end of a week she remained in practically the same state. Anorexia, insomnia, constipation, coated tongue, dyspnea and anxiety were present, but the temperature was normal and the examination of the chest negative. Inquiry now elicited the fact that the attack had followed a fit of anger. An examination revealed all the thoracic and abdominal muscles contracted and tender. The ribs were fixed and the patient unable to take a deep breath, to yawn, or to sigh. The hands and forearm were freely movable and the patient could walk, but she did so with a rigid spine, and the arms were fixed to the sides by contraction of the pectorals. In a word, the entire trouble was a contracture which caused the lumbago and other pains, the dyspnea, the constipation, etc., and these affections disappeared as soon as the contracture was dissipated

Case 4, a hysterical woman of 29 years, had a number of attacks similar to the preceding case. Sometimes the thorax alone was immovable, sometimes only the abdomen. Once there was marked unilateral contracture of the trunk muscles, giving her an exaggerated lateral curvature

Case 5, a girl of 17, subject to hysterical convulsions, often

passed from them into a state of unconsciousness with rigidity of the entire body—trunk and extremities. Occasionally this rigidity would not entirely disappear when she awoke, and any remaining contracture then persisted until the next attack. In this way she had at different times isolated contracture of different muscles of the trunk. Although she was the subject of general anesthesia, the contracted part was always very sensitive, and Janet thinks that frequently the intercostal neuralgia and backache of hysterical subjects are due to this isolated contracture of an intercostal or dorsal muscle.

Case 6, a girl of 19, had become subject to hysterical attacks a year previously, after an assault upon her person. Her would be violator only succeeded in touching her abdomen with his hand, and at the examination the entire abdomen was found hard, contracted, and extremely hyperesthetic. Respiration was carried on by the upper chest, and the patient was unable to take a full inspiration. In the opinion of the author the existing constipation, indigestion and difficult micturition were also to be referred to the extreme abdominal contraction and hyperesthesia, the slightest attempt at movement being very painful.

Case 7 female, aged 32. After a fall, which bruised the right side, she had almost daily attacks of hysterical sleep and a permanent lateral curvature of the spine due to a contracture of the muscles on one side of the back and abdomen.

Case 8, a female, aged 29 was markedly hysterical, and had suffered for ten years, particularly from hysterical affections of the viscera—uncontrollable vomiting—occasionally of blood,—spasm of esophagus, diaphragm, stomach, tongue, urethra, rectum, and masticatory muscles, were some of the neurotic manifestations. Following some slight emotion the trunk would become rigid and almost immovable. Respiration was shallow, rapid, and exclusively superior costal. She could not stoop, nor even nod or turn the head, and the contracted muscles stood out distinctly beneath the skin. She could not take a full breath, cough, yawn, or laugh, and complained that she had to cry in complete silence. Digestion was difficult. The urine had to be drawn, and defecation occurred only once in two weeks.

These contractures, the author thinks, play an important rôle in the various pains and visceral disturbances of hysterical subjects. When such patients complain of a smothering sensation, that the chest feels as if in a vise, of extreme constipation, difficult digestion, etc., this condition of contracture must be thought of and looked

for The patient is asked to execute different movements, and especially to breathe deeply, and to assume divers positions of the trunk, when it may be found that some movements are impossible or painful, and at times the tense muscles may be seen or felt This painful contracture is not incompatible with cutaneous anesthesia of the part The contractures are nearly always the product of emotion, but a violent emotion having once occurred, its repetition is not necessary to cause the original or a reappearance of the contracture This point is particularly (and in our opinion justly) emphasized by the author Three of his cases were subject to hysterical sleep or lethargy, in which the patient is known to have vivid dreams, which are an important etiological factor in subsequent hysterical symptoms But hysterical sleep is not necessary to the development of potent unconscious impressions, and the existence of such *idées fixes subconscientes* must be taken into consideration The author pertinently remarks "It would be a most defective clinical observation to carefully describe the contracted muscles, their insertions and tenseness, and neglect persistent emotional vision, to recognize the outward phenomenon which changes incessantly, and forget the essential pathological root which is possible " He borrows a striking figure of speech from Potain, and calls a contracture "congealed emotion "

The best treatment is massage, which may be employed even when the parts are intensely hyperesthetic by beginning with extreme gentleness The muscles are ordinarily not all tender at first, but just before they cede to the treatment they become tender and painful, which is thus to be regarded as of favorable import The treatment is not to be discontinued as long as the least contracture remains, for such residue may be the point of departure for renewed attacks Immediately following the cessation of the contracture, the patient feels sore and must for some time avoid quick movements, which also might determine a relapse Aside from the mechanical action on the muscles, massage acts in part by the mental impression it produces, it is more efficient during hypnosis, succeeds when given by one person, with failure by another, and is ineffective when used by the patient himself The fundamental treatment of this, as of all hysterical manifestations, must be the rational treatment of the neurosis itself

A Definition of Insanity —

Dr J Sanderson Christison, in recent contributions (*Journal of the American Medical Association*, Oct 19 and Nov 16, 1895), sug-

gests that inasmuch as the term "insanity" is generally regarded as implying an irresponsible condition of mind, it should be restricted to the delusional state. A delusion may exist either consciously or subconsciously, and in the latter event is expressed by emotion in one form or another. Ideas are motive to all acts not originally instinctive, and, as the acts of a correct ideational view must be fitting to the situation, it follows that acts not fitting to the situation are the results of delusions or wrong ideas. An insane delusion is fixed against reason, and so he defines insanity as a delusional state of mind fixed against reason—*i. e.*, reason or refuting evidence will not dissolve the delusion. A delusional undercurrent may develop subconsciously and suddenly break out in passion or some other form of emotion. But for an irrational act there is always an ideational error which may or may not become fixed against reason, and which corresponds to the degree of cerebral defect or suspended function. He maintains that an insane delusion embraces (1) error of fact, (2) error of inference, and (3) illogical tenacity—because the mind cannot be accurate in dealing with things bearing on the delusion owing to ideational incompetence or weakened will or attention. If the mind is accurate in perception (internal and external), there can be no basis for a delusion, and therefore no delusion. Conversely, if it is accurate in inference, it is capable of being accurate in perception.

His position is summed up thus: "Where there is no delusion there is no insanity, for the mind that is competent to comprehend facts and their bearings within the scope of its education and the limits of ordinary surroundings is a mind capable of correction of any error, and, conversely, a mind that is not thus competent must of necessity beget delusion of one form or another, which it is incompetent to discharge, no matter what the combating evidence."

LARYNGOLOGY AND OTOTOLOGY

UNDER THE CHARGE OF W. E. CASSELDERRY, M.D.

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Some Avoidable Accidents of Intubation —

Geo. F. Cott, M.D., (*Medical and Surgical Reporter*, Jan. 25, 1896) says: "An experience of forty cases has been fraught with accidents. I have had the patient stop breathing, and have revived him by artificial respiration. I have been obliged to do tracheotomy

within half an hour after the tube was removed, and the little patient died on the table, have had the tube obstructed within a half-hour after its introduction, necessitating its extraction, have had the tube coughed up, and death follow before aid could be rendered, have had three different tubes coughed up immediately after introduction, so that I was forced to perform tracheotomy. I have lost tubes during an effort at extraction, and lost the patients, too." It is the latter accident that is dwelt on at length.

A child 13 months of age, having worn the tube for four or five days, approached convalescence, in an effort to remove it the extractor apparently slipped and the tube disappeared. One month later, at the post-mortem examination, the tube was found in the right bronchus. A similar case where the tube had been pushed, in the effort at extraction, between the vocal cords into the trachea, is mentioned. To prevent this accident the author advocates the new extractor of Dr. Lewentohl, by which he thinks the extraction is simplified, pressure upon the top of the tube being unnecessary.

[The tube not uncommonly, in efforts at extraction, may be pushed below the ventricular bands, so that the head of the tube occupies the ventricles of Morgagni, yet lying above the true vocal cords, but for it to drop through the larynx into the trachea has been but rarely recorded. One cannot but think that both of these serious accidents could be prevented if tubes with sufficiently large heads were employed. Many of the tubes in the market are deficient in this particular, the head not only being too small but projecting too slightly backwards over the interarytenoid fold. Since the introduction of the posture method of feeding children subsequent to intubation, there is no object in using a tube with a specially small head, because it is unnecessary to have the epiglottis cover the tube completely during deglutition. The larger size of the head of the tube also renders its extraction easier, as it is more readily felt and undue downward pressure is avoidable.—W. E. C.]

Bacteriological Findings in Angina Lacunaris —

Dr. Edmund Meyer (*Archiv für Laryng und Rhin*, heft 1, 1896) says the secretion of the tonsil in a state of acute inflammation has been subjected to minute bacteriological research, and with the result that the streptococci *pyogenes aureus* and *albus*, the staphylococcus and the pneumococcus are found to be associated with this disease, but without establishing with certainty the fact of any one of these micro-organisms being the actual cause. Animal experiments have given negative results. It is, indeed, possible, by

rubbing streptococci into injured mucous membranes, to produce a fibrinous deposit, but an angina transmitted from man and running the course with which we are familiar has as yet never been produced experimentally in animals

The author found in fourteen cases staphylococci, usually staphylococcus *aureus*, not *albus*. He later explains that in these, which were his early cases, there was a defect in his technique by which streptococci (presumably present also) were not found. In twenty four cases staphylococci and streptococci were both present, in fifteen cases streptococcus *pyogenes*, in pure culture. Leaving out the first group of cases, in which the technique was defective, he found streptococci present in overwhelming numbers in all, and he is in consequence convinced that it is the streptococcus which is the specific exciting cause of this disease, and that the staphylococcus in general is a rather innocent accompaniment of the streptococcus. Like his predecessor, Sendzic in this line of research, and unlike Norris Wolfenden, he was unable to distinguish any difference in the clinical course of the disease in consequence of the presence of varying species of micro-organisms, that is to say, he could not distinguish clinically a streptococcus angina, or a staphylococcus angina, or a pneumococcus angina. In a few of his cases he found the diphtheria pseudo-bacillus of Hoffman present. Thus he finds impossible to distinguish, without guinea pig injections, from a genuine Loeffler bacillus. The Loeffler bacillus was present in only two cases, but in these the clinical course was identical with the others.

Roentgen Rays in Laryngeal Surgery —

John Macintire, M B C M F R S L, (*Journal of Laryngology and Rhinology*, May, 1896) has tried a number of fluorescent screens for the cryptoscope—among them the potassium platino cyanide and barium platino-cyanide being the best—and with this apparatus has been able to cause the light to easily penetrate the tissues of the neck and chest, he has thus seen sufficient to be able to say that foreign bodies might be detected with the eye without even the agency of photography.

He records an interesting case in which a patient had swallowed a half penny six months previously, and on examining him by means of a fluorescent screen there could easily be seen a round black shadow of the coin at the level of the third dorsal vertebra. This was important and interesting because the boy referred his pain to the cardiac orifice of the stomach. The case was afterwards pho-

tographed, but this was unnecessary, since the foreign body could easily be seen on a fluorescent screen by the eye. He has been able to photograph the larynx in the human subject, the picture obtained showing the base of the tongue, the hyoid bone, the thyroid and cricoid cartilages, and the epiglottis. The opening at the upper part of the esophagus was also seen, and the spine was indicated behind. He has also photographed the bones of the face and has made some experiments on the antrum of Highmore.

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF W. L. BAUM, M.D.,

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The Serum Treatment of Leprosy —

In November, 1895, Dr. Juan de Dios Carrasquilla presented a communication to the National Academy of Medicine of the Republic of Colombia, on the serum treatment of this disease. He was the first to prepare and employ an anti-leprous serum (*New York Medical Journal*, Jan. 18, 1896).

Dr. Carrasquilla gives a full account of a case of well marked tubercular leprosy characterized by leontiasis (the *leptome en nappe* of Leloir) and the anesthetic phenomena commonly seen in the disease. Prompt improvement followed the use of the serum treatment, and recovery, save for the persistent marks of the ulcerative features of the disease, ensued in less than a month. Shorter accounts are given of three other cases of tubercular leprosy in which the results of serum treatment were equally satisfactory.

The author's conclusions are as follows:

1. The serum treatment overcomes the anesthesia more or less rapidly, in proportion to the extent and gravity of the lesions of the peripheral nerves.
2. It decolorizes the macules without obliterating them entirely, they become the seat of abundant desquamation.
3. It causes edema to disappear rapidly in some cases, slowly in others, the skin retracts, becomes wrinkled, and finally returns to its normal state when the edema has subsided.
4. The tubercles become flattened, softened, and disappear, either by absorption, by desquamation, or by suppuration, leaving marks to show their situation.
5. After suppurating abundantly, the ulcers heal with marvelous rapidity and leave the skin sound.

6 The scars of old suppurative lepromata become pale and tend to assume a level with the surrounding skin

7 The ulcerated mucous membranes hasten to cicatrize, become decolorized like the cutaneous macules, and regain their sensibility while the tubercles disappear

8 With the disappearance of the edema and the tubercles, and with the fading of the stains the countenance grows thin and loses its leonine aspect entirely

9 The appetite is recovered together with the capability of sleeping, there is cheerfulness, content replacing the previous profound depression, and lost hope is regained

10 From the first serum injection administered to the patient, the morbid action of the bacillus *lepræ* ceases, and no new manifestation of the disease shows itself This the author has invariably seen in the fifteen cases that he has treated

The peripheral nerves are the seat of the disease, and the lesions observed depend on disturbed nervous action that corrected, they will gradually disappear

Two Cases of Chromidrosis —

In *The Lancet* (London) of February 15, 1896 Dr F W A Stott relates two cases of chromidrosis The first patient was a man about 40 years of age, who had noticed about three weeks previously that his under linen always became stained with a pink color after a few hours' wear, and that the coloring was more extensive and deeper after he had been perspiring freely His pillow was similarly colored on rising in the morning He took frequent hot baths with a view of removing the color from his skin, but without the desired effect This went on for about a week, when his son, a young man engaged at the same place of business as his father, commenced to exhibit the same symptom As they were wearing no colored material and could not account for the phenomenon, they naturally became alarmed and sought medical advice The elder patient showed his collar, cuffs and shirt, which were all stained a beautiful pink (not the color of blood) The stain was most marked upon the collar and neck band and upon those parts of the shirt which naturally came into contact with the nates and scrotum, but the perspiration of the axillæ and of those parts of the body which were covered by an under vest of unbleached wool showed no color it was noted that the parts affected were those which would most frequently come in contact with unwashed hands A careful examination of the skin was made, but no traces of coloring matter

upon it could be found. Some sterilized tubes were taken and three inoculations made upon potato media, namely (1) from the back of the neck, (2) from the scrotum, and (3) from the upper arm where there was no stain. In four days the inoculation from the scrotum yielded a colored growth, presenting the appearance of a bead of pink coral, but rather pale. As this was an impure growth, some other molds being present, he made a second inoculation from the pink portion upon potato, and succeeded in obtaining a pure cultivation of a pink torula. The cultures grew best at a temperature of about 65° F, the intensity of the color varying inversely with the temperature, at 32° the color became a deep red. The cultures required a considerable amount of moisture.

Dr Stott believes the trouble to be a parasitic disease of the sweat glands and ducts, requiring a soil peculiarly suited to its development. He thinks the organisms were conveyed to the affected parts by the hands, but from what source he is unable to say. In these cases one cannot help looking to the occupation of the patient for a suggestion as to the possible source of infection. Is it conceivable that in the case of these two patients the handling of coins or of paper money (which occurred in the course of their business) had anything to do with the infection?

GENITO-URINARY DISEASES

UNDER THE CHARGE OF G. FRANK LYDSTON, M.D.,

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Venereal Disease in the Female —

In the February, 1896, issue of the *New England Medical Monthly*, Dr John V. Shoemaker deals with this subject.

The constitutional effects of syphilis are precisely the same in male and female. A chancre, however, may escape observation when hidden in the folds of the mucous membrane of the female genitalia, unless it be especially sought for, and even when detected, the sore not infrequently lacks the characteristic aspect of the initial sclerosis as found in men. The ulceration is conspicuous, and the induration is readily recognized. It is different with the so-called superficial erosions: this form of primary lesion may easily pass altogether unnoticed by the patient, and the first intimation she perceives of infection is an outbreak of secondary manifestation. From the moisture and laxness of the female mucous membrane,

induration of the sore is, in some cases, not as certainly detected in women as in men, even though it be as constantly present. Chancres in women may be located upon the cervix uteri, and therefore may be unsuspected unless the speculum be used. The primary lesion is not frequent in this locality, yet it probably occurs more often than is generally supposed. In a thorough examination of a series of cases, including a considerable number of prostitutes, the author failed to find a chancre in this situation. Chancre of the cervix is almost invariably a single lesion, it may occur in the form of an ulcer, the surface of which is generally grayish or yellowish red, in some instances it is covered with a sort of false membrane, while in others it assumes a papillated or even vegetating appearance.

Years ago the author was consulted by a young woman on account of a violent pain in the head. She had at one time been employed in the venereal wards of a hospital, and had acquired considerable experience of the gross appearance of syphilitic lesions. She had no knowledge of having personally contracted a chancre, and asserted positively that there had been no suspicious sore upon her genitals. Suspecting a specific cause, a mercurial was given, which produced an amelioration followed by a total cessation of the pain. Some days later a syphilitic exanthem appeared the patient had sore throat and falling of the hair. In another and similar case, rapid improvement was brought about by the administration of protiodide of mercury.

Syphilis is not necessarily a venereal disease in the sense of being transmitted by the sexual act. Any infected article may be the medium of contagion.

Gonorrhea in the female occupies a different anatomical site than in the male, being in a large majority of cases a vaginitis. The infecting fluid is usually deposited in the upper part of this canal, and excites inflammation of the mucous membrane in that situation. The disease generally originates from subacute, and particularly chronic, cases in the male partners, as in the acute stage erections are painful and men are not in a state of mind or body which disposes them to seek the society of women. Urethritis in women is more commonly associated with gonorrheal inflammation of the vulva or lowest portions of the vagina.

The diagnosis of gonorrhea is seldom difficult. The discharge is much more abundant in vaginitis than in leucorrhea. An unusually copious leucorrheal flow might simulate the declining stage of a gonorrhea, but the use of the speculum will enable us to distinguish between the two affections.

Gonorrhea in the female was until very recently considered to be much less serious than the same malady in the male. The symptoms are less severe, and the acute stage is not so often aggravated by complications. The pus-tubes from which so many women suffer are often of gonorrheal origin.

Condyloma Latum —

Dr W S Gottheil (in *American Surgical Bulletin*, Jan 11, 1896) says that condyloma latum should be a well studied and accurately known disease growth, if wealth of nomenclature is a criterion. Condyloma latum and condyloma planum are the commonest of these designations. Mucous papules is a term frequently employed. Casenave enumerates the following synonyms: plaques muqueuses, pustules muqueuses, plaques humides, tubercules muqueuses, and tuberculous plates. Ravogli speaks of papula humida, pustula foetida, papulæ mavidantes, etc. In spite of this, however, the broad condyloma is by no means a thoroughly understood lesion. It is a tumor that belongs to and is most characteristic of syphilitic disease and occurs at any stage of that malady, but is commonest in the early months. It frequently appears in combination with other manifestations of systemic infection, and not infrequently it is the only evident lesion. Mucous patches, so very common during the stages of general syphilis, are merely papules of the mucosæ, they may appear as part of a general muco-integumentary papular, pustular, squamous, or other eruption, or they may appear alone, the skin being entirely unaffected. Mucous patches of the ordinary kind are simply papules of a general syphilitic eruption, situated in places where maceration and erosion necessarily occur, such as in the oral and vaginal cavities, on the thighs, scrotum, labia, anus, the interdigital skin of the feet, under the breasts, etc.

Of all the syphilitic lesions occurring on the genitals and around the anus, mucous patches are the most frequent. But they do not there usually assume the form of the grayish-white eroded patch so familiar to us in the buccal cavity. Most commonly they appear as tumors, which may be designated as the elevated or the vegetating mucous patch, or the condyloma latum. These mucous patches are extremely contagious.

The cause of condyloma latum is that undescribed organism which causes all the varied symptoms of syphilis.

The anatomy of condyloma in its earlier stages does not differ from that of other syphilitic nodes. There is the familiar, sharply limited, small-celled infiltration of the papillary layer and the

corium, occasionally extending into the subcutaneous connective tissue. The cells are of the ordinary leucocytic type, varying in size, and are apparently imbedded in a very fine network. In point of fact, condyloma shows the ordinary characteristics of a granulo-matous tumor. The papillæ affected by the infiltration are enlarged, mainly in their longitudinal diameters, and terminate in branched, club-shaped ends. The mucous layer is thickened at the periphery of the condyloma where it is growing. The conical processes are elongated and broadened.

Diagnosis is usually not difficult, inasmuch as the location and the form of the lesion are characteristic. The condyloma latum appears as a flat, rounded elevation, generally of a grayish red color, and situated around the genitals. Dry at first, the tumor is soon moistened by sweat and the natural secretion or excretion of the orifice on or near which it is located, the fluid decomposes, the parts become inflamed, and more or less suppuration takes place. The exudation and the epithelial detritus may dry into a brown crust, resembling that of a pustular or an impetiginous lesion. The irritation that this secretion causes to the already enlarged or deformed papilla has its natural effect. Hyperplasia of the papillar body occurs, and the condyloma begins to vegetate. Contiguous lesions usually coalesce, forming irregular, flat cauliflower like growths. The surface of the tumor is furrowed by irregular fissures which channel the mass.

While on most of the body surfaces where contiguity occurs the papule of syphilis simply becomes eroded and develops into the mucous patch, on the genitals its course is peculiar. Here the true condyloma latum is seen. On the perineum and scrotum are formed round, reddish gray or gray nummular discrete lesions. Around the anus and on the labia these are frequently arranged like buttons. Friction, pressure and maceration often cause immense tumefaction, and fissures, itching, burning and spasm of the orifices involved are not infrequently seen. On the female genitals the papules frequently attain their greatest size.

The immediate local prognosis is good although cases of condyloma latum are very refractory to treatment, prone to relapse, and instances have been known in which they have recurred ten to thirty years after the initial lesion.

The treatment is largely that of the syphilis of which they are a part. As in the other secondary manifestations mercury in subcutaneous injection is the surest, quickest, and most effective method of treatment. In the local treatment, unguentum hydrar

gyri, unguentum hydrargyri ammoniata, emplastrum hydrargyri, or calomel, is to be preferred when the condylomata are so situated as to allow of their application. Absorption may be hastened by touching every fourth day or so with the acid nitrate of mercury, using the other applications in the interval.

If ulceration and decomposition of secretion and detritus have set in, compresses soaked in a solution of sulphate of copper, 1 300, are effective. Iodol and iodoform are also of service. When the lesions are very extensive, calomel must not be used pure, but must be mixed with some indifferent powder, such as chalk or talcum, about one to five.

[A solution of mercuric bichloride in collodion (ten grains to the ounce) is often a most effective application. Where the condylomata are stubborn, the scissors or the actual cautery, one or both, may be used. Excessive internal medication is often practiced in stubborn condylomata where radical local treatment is really indicated.]

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ORIGINAL ARTICLES

TREATMENT OF CONSUMPTION ¹

BY N S DAVIS JR., A M M D.,

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It is not my object to review exhaustively the subject of the treatment of phthisis pulmonalis but to present some salient features of its most modern treatment and thereby excite discussion

The present time may be termed, so far as the treatment of tuberculosis is concerned the period of search for a specific by scientific methods Unfortunately, all the seekers are open to the criticism that, while starting from suggestions which experimental research has afforded them, they immediately apply their hypothetic treatment to man and urge the profession at large to do the same, before by experiment upon lower animals they have proven its value beyond peradventure, and before from a mixture of chemical substances they have isolated an active principle

In seeking for a specific Koch started from the well known generalization that bacteria produce by their own growth substances which, when accumulated in sufficient quantities, will kill them From the chemical products of the growth of the tubercle bacillus he obtained tuberculin a glycerin extract the composition of which is very complex By Klebs it has been refined in the production of tuberculocidin and antiphthisin

The establishment of serum antitoxin as a successful remedy for diphtheria, by the elaborate experiments of Behring, Kitasato, and others suggested the employment of serum prepared by analo-

¹ Read as an introduction to a discussion of the Treatment of Consumption at the meeting of the Illinois State Medical Society May 13, 1896.

gous methods for tuberculosis. But those who have made the latter serum and placed it on the market have not repeated the experiments of Behring, Kitasato, and Roux, by which the existence, under certain circumstances, of a chemical antidote in serum to the poisons generated by the bacillus of diphtheria, and the virtue of inoculation of this serum for the prevention and cure of experimental diphtheria, were established. They have prepared a serum with tubercle bacilli and their products, by analogous methods, demonstrated its innocuity in animals, and at once begun experiments upon men. Medical men are, therefore, after about three years of trial of this preparation, still experimenting clinically, with no certain facts under their feet—only a mass of impressions made mostly upon unskilled observers.

Tuberculin and the products derived from it have fallen into almost complete disuse. A few practitioners still employ them, and as they use them only in the cases best suited to their employment, they are able to report benefit from them. These are cases in the stage of incipency, or early consolidation, without marked pyrexia. The publication within the year of the death from consumption of a man who was early treated by Koch with tuberculin and pronounced apparently cured, has excited much interest, and points a lesson which must not be forgotten in testing the value of any drugs applied as a cure for tuberculosis. *z c*, at least two, or better three or four, years are needed to test their efficiency as curative agents. In tuberculosis, periods of remission so frequently follow all kinds of treatment, even sometimes no treatment at all, that their existence must be remembered. Time only can determine whether it is a remission or a cure that has been effected by a given remedial procedure. And as few cases are kept for years under watch, this time test of treatment is rarely applicable.

Recent users of tuberculin and its derivatives have added nothing to our early information in regard to its physiological action.

As an aid to the diagnosis of tuberculosis, tuberculin is relied upon by veterinarians, and occasionally may be applied by clinicians to man. I had occasion recently to demonstrate its utility for this purpose in my ward of Mercy Hospital. A young man, a Pole by birth, entered the hospital complaining of constant pain in the loins and across the abdomen, of varying degrees of severity. He had no fever, but during the few preceding weeks had suffered considerable pain and lost flesh and strength. His secretions and excretions were normal. His liver and spleen were not enlarged. He had no cough, no lung or heart disorders. The abdomen was slightly dis-

tended, tender in the upper part and especially under the lower left ribs, it was very moderately tympanitic, except over the lowermost part, where dullness was demonstrable, and by combined palpation and percussion the vibration which is characteristic of fluid within the abdomen was obtainable. Unquestionably it was a case of very moderate ascites. The existence of a localized peritonitis, not readily discoverable, seemed to best account for it. As the peritonitis could not be explained by any of its more usual causes, the existence of a mild tubercular inflammation within the abdominal cavity seemed probable. The patient was kept under close observation for several weeks, without affording any new clue to a diagnosis. Finally, with his consent, a single injection of tuberculin was administered, and was followed by a most characteristic febrile reaction. I can myself no longer doubt the tubercular nature of the case. During the last ten years I have made no use of tuberculin except in rare instances like this one, as an aid to diagnosis. My early experience with it was not favorable, although I selected my cases with care.

Serum was employed as a cure for tuberculosis in 1890, it was obtained from the dog and goat, without modification by treatment of the animal. It was fancied that the almost complete immunity to the disease which these animals possess was due to some ingredient in the serum of their blood, which could be transmitted by inoculation to a tuberculous patient, and there exert its inhibitory power. In the hands of Semmola, Richert, Rogers and others, it produced variable results—on the whole, results not sufficiently favorable to warrant its more persistent employment.

More recently, serum from horses made immune to tuberculosis by successive inoculations with viruses of gradually increasing virulence has been prepared and tried, independently, in Italy, France, Austria, and this country.

Good results are reported with much uniformity from the employment of this serum in cases not complicated by serious infection with other microbes than the tubercle bacillus. If the destruction of the lungs is considerable, and pyogenic organisms are abundant in the diseased tissues, comparatively little effect is obtained.

The ordinary dose is 2.5 cubic centimeters, administered hypodermically daily or every second day. Much larger doses have been employed—10 to 12 cubic centimeters—but not with proportionately better results. Regnier has found that more than two cubic centimeters will often produce a transitory increase of temperature last-

ing from a few hours to several days. If a febrile reaction is provoked, it is not associated with changes in the affected portions of the lungs, nor dependent upon the disease or its severity, but upon peculiarities of the patients.

The heart and arteries are not affected by these injections. Leucocytosis follows. Increase in the number of red blood-corpuscles and hemoglobin occurs as general improvement takes place. As a rule, the urine is not materially modified. In a few instances albuminuria and peptonuria have been provoked, but no serious lesion of the kidneys.

Appetite is almost uniformly improved after the first few injections, and increase in bodily weight rapidly follows.

If at the time treatment is begun the patient suffers from fever, it will not be augmented unless large doses of serum are administered, and then only temporarily. As a rule the sufferers become apyretic if the treatment is persevered in. By the end of a month the physical signs are usually modified so that improvement in the condition of the lungs can be demonstrated.

Accidents rarely follow this treatment, such as temporary erythemata, urticaria, and phlegmonous infiltration of the subcutaneous tissues. Maragliano has shown that these phenomena occasionally follow the introduction of serum that is not antitoxic, they are due, therefore, to peculiarities of the individuals being treated and to the serum, not to the antitoxin.

I have thus briefly summarized the reports of the most trustworthy observers of this treatment, for my own experience is limited to a single case now under guidance, and from which I cannot yet draw conclusions. The treatment seems to be harmless and in suitably selected cases to promise improvement. Much more time must elapse before we can with confidence pronounce such improvement a permanent cure.

Little has appeared in medical literature concerning the utility of nuclein in tuberculosis since Vaughan addressed this Society two years ago upon the subject. Nuclein possesses antiseptic properties, but above all the power of provoking a vigorous leucocytosis, which, it may be hoped, will stimulate the tissues to a more successful resistance of invading micro-organisms. It has been claimed for nuclein that it is of use in tuberculosis and in suppurative disorders. In the latter class of cases it has often seemed to me useful, but in cases of mixed infection—infection by the bacillus *tuberculosis* and by pyogenic organisms—it has not done good. When suppuration is threatening from invasion of a tissue by streptococci or staphylo-

cocci, I have many times observed apparent inhibition of the suppurative process by means of nuclein treatment. This success tempts me to continue experimenting with the drug, even in tuberculosis. I have witnessed no ill effects from its employment, no effects upon bodily temperature, circulation, excretion of waste products, or general nutrition, except such as might be induced by favorable changes in the inflamed tissues.

Creosote and its derivative, guaiacol, and their compounds, continue to be generally used. In the early stages of pulmonary consumption these drugs often cause prompt improvement both general and local. Many observers have ascribed these good results to the effect of the preparations upon digestion and nutrition. Observing that, in cases in which good results followed their administration, the sputa became less purulent, I have been inclined to believe they were able to inhibit or modify suppuration, provided it was not extensive, and that the good they did came largely from this power. They certainly do not destroy, and often do not much lessen the number of, the tubercle bacilli. W. Knight Fyffe¹ has, however, demonstrated that although creosote does not kill the bacilli, it very greatly lessens their virulence. He administered it to consumptives in various ways, by the mouth, by inhalation, and by the creosote chamber. The sputa of his patients, before and after a period of treatment of several weeks, were injected beneath the skin of rabbits' legs, and in proportion to the amount of the drug taken by the consumptive did the sputa become comparatively innocuous, provoking a localized tuberculosis, which became generalized much more slowly than in the control cases inoculated with sputa before the treatment was begun. These experiments of Fyffe deserve to be repeated, that we may have confirmation or disproof of the results which he obtained. If true, they explain much of the utility of creosote and guaiacol in the treatment of tuberculosis. We can, then, conclude that these drugs lessen the virulence of the bacilli, and therefore the danger of the spread of the disease in the lungs. In other words, they lessen the danger of auto-inoculation which ordinarily takes place so extensively in the lungs of consumptives from the original foci of infection. Moreover, it is probable that the presence of these drugs in the tissues of the lungs makes the latter less perfect media for the growth of the bacilli. Creosote and guaiacol prove most efficacious when the areas of pulmonary consolidation are few and small, so that they may be easily permeated.

¹ *British Medical Journal* 1894

Fyffe's experiments showed that inhabiting a room, for several hours daily, the atmosphere of which was thoroughly impregnated with creosote, made the sputa less virulent than did the administration of the drug by ordinary methods of inhalation or by mouth. I cannot see why better results should be obtained, or the comfort of the patient so well preserved, by such treatment as by the use for a considerable part of each day of a respirator saturated with creosote.

During the last three years I have frequently administered guaiacol endermically. Its rapid absorption and very pronounced physiological effects have been studied by the profession generally in typhoid fever. The possibility of introducing into the system even toxic quantities of this drug through the skin is universally admitted. I hoped that in the treatment of phthisis this would prove a convenient mode of administration. I have found four faults with it after a rather extensive trial. The dosage cannot be accurately regulated, for the skin absorbs with varying rapidity at different times. The drug administered in this way is apt to provoke copious sweating, which distresses the patient. If as much as thirty drops are thus administered daily, it increases anemia and produces sometimes almost a cyanotic hue of the skin and mucous membranes. The drug will, if it gains access to the patient in sufficient amount, destroy red blood-corpuscles and lessen the oxygen-carrying power of the hemoglobin. Moreover, by this mode of administration its beneficial local effect in the stomach is missed.

I can commend the administration of the drug in this way if for any reason it cannot be given by the mouth or by inhalation. I believe it is safer to apply only five to ten drops to the skin twice or three times daily, rather than larger amounts at longer intervals.

Unquestionably, for consumption we must still rely chiefly upon hygienic and symptomatic treatment. A life in the fresh air, in suitable climates, with rest or properly regulated exercise, a generous but varied diet, and mental as well as physical comfort, promise greater success than any of the possible specifics now being experimented with. I need not here describe the beneficent effects of respiratory gymnastics, climatic and other hygienic treatment.

It is a source of some surprise that in this country the treatment of consumption in special sanatoria has not received more attention. In Europe such good results have been obtained from prolonged residence in such institutions, results that can rarely be duplicated in ordinary practice except among our wealthiest patients, that I can but hope we may in this country soon have numerous institu-

tions comparable to those at Goebersdorf and Falkenstein in Germany

In closing these remarks, introductory to a discussion of the treatment of tuberculosis, I will only add that for the cure of tubercular disease of the lungs as we ordinarily meet it, we need a specific for pyemia quite as much as we do one for tuberculosis, for in most cases there is mixed infection and when the disease is well advanced the pyemia is as marked as the tuberculosis. Moreover, while the human system can often vigorously resist the tubercle bacillus, it usually fights a losing battle against the combined attack of it and pyogenic organisms

THYREOID THERAPY ¹

BY JAMES B HERRICK, M D CHICAGO

During many decades no therapeutic advance has been made at all comparable in importance to the discovery of the antitoxin of diphtheria, and the use of the thyreoid gland in the treatment of myxedema. The antitoxin opens up the wide field of serum-therapy, in which many workers already make more or less favorable reports concerning the serum treatment of other infectious diseases, such as tetanus, typhoid, pneumonia, scarlatina, septicemia, tuberculosis, and the thyreoid opens up the field of organ-therapy, with experiments and observations rapidly multiplying as to the therapeutic value of extracts of the kidney, adrenals, testicle, brain, and other organs. Omitting from consideration all preventive measures, such as vaccination, boiling and filtering of water, etc., it may be said that we have four remedial agents that are truly curative or specific—potassium iodide, quinine, diphtheria antitoxin, thyreoid extract. To the latter I wish to direct your attention for a few moments.

The story of the discovery of the virtues of the thyreoid gland in the treatment of myxedema is as interesting as a romance. You are undoubtedly familiar with it, so that I need merely call to your minds some of the more important facts. You remember that Gull in 1873 made a clinical demonstration "on a cretinoid state supervening in adult life in women." Ord in 1877 reported two cases, with an autopsy where atrophy of the thyreoid gland, and mucin in the subcutaneous tissue were striking post-mortem findings. Charcot and his pupils, and Hadden in England, made still further clinical observations, and a little later the surgeons Reverdin and Kocher declared the changes in many of their patients from whom they had removed thyreoids to be the same as in Ord's myxedema. Independently, too, the physiologists Schiff and Horsley—the one in Switzerland, the other in England—showed that the removal of the thyreoid in the lower animals—the dog and the monkey—was followed by cretinoid symptoms and death. By the implantation of a thyreoid into the abdomen, however, life was prolonged. The conclusion, therefore, was inevitable, that the thyreoid gland had a function necessary to the maintenance of health or even life. In 1888 the report of the Committee of the London Clinical Society was made, declaring that cretinism, idiopathic myxedema and oper-

¹ Read at the meeting of the Illinois State Medical Society, Ottawa May 19, 1896

ative myxedema were but different types of one and the same disease, depending upon an anatomical or physiological (functional) absence of the thyroid gland

Surgeons and experimenters now noted the good effect of leaving a portion of the gland when it was to be removed, and also the benefit from implanting thyroids as of sheep, into the abdomens of human beings suffering from myxedema (Kocher, Horsley, Bircher, Lannelongue) Vassale injected thyroid juice, and Murray, in England, reported in 1891 the successful subcutaneous employment of a glycerin extract of the thyroid gland The next year fresh glands were fed by Horwitz in Copenhagen, and Mackenzie and Fox in London, and a little later the pharmacists had prepared the dried powdered glands or dried extracts in various forms

It is of interest to note that we owe this great discovery in medicine to no one man to no one nation Clinicians, surgeons, experimental physiologists pharmacists, have each worked, often independently, in their own lines, until fact upon fact has been accumulated, all proving that myxedema, under whatever name it goes is athyreoida, and that the disease is curable by supplying through the thyroid glands of lower animals the chemical substance that is lacking

Theory of Action—The older theories as to the purely nervous origin of myxedema are at present discarded Since Schiff and Horsley experimentally, and many observers clinically, have proven that the thyroid gland has a function, other theories have been advanced Schaefer¹ states the two main theories clearly when he says the first is the *auto intoxication* theory—the thyroid a gland having for its function the destruction of natural toxins which without this antidotal action lead to the condition we call myxedema the second the *internal secretion* theory, the thyroid a secreting gland, its secretion taken up by the lymph vessels and necessary for the proper metabolism of the body, especially for nervous and connective tissue According to either one of these theories the administration of thyroid extract merely supplies the lacking secretion—supplies, in other words, some chemical substance that is necessary to health, or even life, but which the diseased or absent gland fails to supply To quote Ewald “The secretion of the gland acts as an antitoxin against certain toxins that appear as the by products of tissue change”²

Just what this substance is, has not been accurately known

¹ *British Medical Journal* August 10 1895.

² *Centralblatt für Innere Med* No. 1 1895.

But Baumann has recently eliminated an organic iodine compound from the thyroids of sheep, to which he gives the name *thyro-iodine*, and investigations are going on to try to prove whether this is the effective chemical agent in thyreoid therapy. The results thus far are in favor of this view ¹. If it is, and if it can be manufactured synthetically in the laboratory, and if its dose can be proven experimentally, we shall have a most valuable therapeutic acquisition. Baumann hopes to be able to explain why glycerin-and-water extracts of the gland are therapeutically active, while thyro-iodine is insoluble in water. There may be other compounds equally as efficacious as thyro-iodine.

It may be added that some of the untoward effects of the thyreoid extract are believed by some to be due to impure or contaminated remedies. Fresh glands produce less of unpleasant thyreoidism than older ones that have undergone decomposition with the formation of undesirable chemical compounds. With a synthetic thyro-iodine any undesirable by-effects would be avoided ².

Method of Administering —The cruder methods of feeding fresh or cooked thyroids or of injecting subcutaneously a glycerin extract, have given place to the more accurate, pleasanter and easier methods of employing the dried powdered glands or the tablets containing the essential principles. Several firms now furnish good and reliable articles.

Dose —For an adult, from three to fifteen grains of the powdered gland a day. Burroughs & Wellcome prepare a compressed tablet of dry thyreoid gland. One tablet equals one sheep's gland. The dose is from one-half to four tablets daily. Kraus has given as high as five or six a day ³. Parke, Davis & Co. have a thyreoidin tablet that I have found reliable in a case of cretinism, the largest dose in one day not exceeding two tablets. They also make in tablet and powder form a preparation they call thyroids, claiming for it all the virtues of the powdered glands.

Effects on Healthy Individuals —The effects in health are not constant. Many report no effect. Commonly, however, large doses produce loss in weight, Diuresis, rapid heart's action, headache and insomnia are reported (*vide* Kraus).

¹ Cf. Ewald, Roos, Treupel.

² Roos, Treupel and Ewald believe the thyro-iodine contains the specific principle or principles of the thyreoid gland and that it can be substituted, therefore, for the fresh glands, the extracts, and the dried preparations of the same. One gramme of thyro-iodine contains three tenths of a milligramme of iodine, and corresponds, so far as amount of iodine is concerned, to one gramme of sheep's thyreoid.

Ewald on the 'Therapeutic Use of Thyreoid Gland Preparations' Report of the Proceedings of the Fourteenth Congress of Internal Medicine at Wiesbaden April, 1896 *Centralblatt für Innere Med.*, April 25, 1896.

³ *Therapeutische Wochenschrift*, Jan. 26, 1896.

THE THERAPY OF THE THYROID GLAND

1 *In myxedema* It can be put down as a settled fact that thyroid extract is curative in myxedema. It would be useless to cite the numerous reliable reports of isolated cases and of series of cases that have thus far been published. British journals, particularly, seldom let a week pass without reciting some new case, often with cuts showing the "before and after taking" stages, in which thyroid extract has wrought the almost miraculous change in some woman's physical and mental condition, or has transformed some stunted, stupid, pigmy like imbecile—"toad like caricature of humanity," Osler calls it—into a bright, laughing, growing, wide awake child.

When the extract is fed to a myxedematous individual in full doses, most remarkable effects are noted. To these phenomena the term "thyroidism" has been given. One is reminded in this connection of the somewhat analogous effects of our other specifics—cinchonism and iodism.

There is a rapid loss of weight, the fatty masses above the clavicles disappear, the mucus in the subcutaneous tissues vanishes. Not infrequently a sharp rise of temperature occurs in striking contrast to the previously existing subnormal temperature. The pulse rate increases. There are sweats, the skin itches, at times desquamation takes place. There may be diarrhea and vomiting. Pains in the joints in the back, in the cardiac region, are sometimes noted. The patient may grow nervous, sleepless, anxious, irritable, even delirious—a wonderful change from the former condition of mental hebetude or imbecility. The urine is increased in amount and may contain a little albumin or sugar. Cretins have the hair become soft and the teeth develop naturally, they may grow several inches in height in a single year whereas for perhaps twenty years before not an inch had been gained. They learn to talk and to walk, the voice loses its harsh character and becomes soft and natural. It is a transformation from *horribile dictu* into *mirabile dictu*.

A very few fatal cases in those already ill of some other organic disease as of the heart are reported. Murray lost two under these circumstances. Thomson¹ reports a fatal case where autopsy showed myocardial degeneration.

If the theory as to the causation of myxedema be true, the artificially fed thyroid extract merely supplies the chemical sub-

¹ *Edinburgh Medical Journal* 1893, p. 1014

stance that is no longer elaborated by the absent or inactive gland. It need excite no surprise, therefore, to learn that in cases of myxedema relapse into the old condition soon follows the stopping of the remedy. Moderate doses have to be continued for indefinite periods. This is the experience up to the present date, at least. Murray reports¹ that the first patient he treated by thyreoid feeding, in 1891, is still alive and well, but that the treatment is still continued. What future trial will disclose, especially in the case of cretins after they have attained full physical and mental development, cannot be foretold. It is probable that in all cases, unless it be where a temporarily inactive gland can be roused to activity, the remedy will have to be continued for years or during life.

In obesity. The rapid loss of weight that occurs in myxedema when the remedy has been employed, suggested its use in obesity, and the results warrant a trial in all cases. Kraus finds thyreoidin of greater value in anemic obesity than in that form accompanied by rosy lips, ruddy cheeks, good appetite, strong muscles. In all cases the action on the heart is to be watched. Diet may or may not be altered. Where great tendency to weakness is shown, a full nourishing diet should be allowed during the treatment. Relapses are common unless moderate doses are continued. Among those who give favorable reports may be mentioned Davies, Leichtenstern, Wendelstadt, Dercum, Barron, Ewald.

Losses in body weight, even up to ten kilogrammes in six weeks, are reported.² Ewald finds that the thyro-iodine answers fully as well in the reduction of weight as does the entire gland. Just why some cases are refractory and others amenable, is still not definitely settled.

In struma. The outlook for improvement or cure in cases of simple parenchymatous goitre is good. Cures by the use of the raw glands, the tablets, the extract, and thyro-iodine, are reported by many. Bruns, nine out of twelve cases, Reinhold, five out of six, Ewald, eight out of eight, Leichtenstern, an unsuccessful case treated with the tablets, Stabel, in twenty-five cases four cured, twenty-one improved. Stabel prefers the fresh glands or fresh extract to the tablets, finding—if the glands are not decomposed—fewer unpleasant symptoms develop.

The most elaborate report is that of Bruns, of Tübingen, who for two years has systematically treated goitre by the fresh glands, the tablets, and later by the thyro-iodine. His conclusions, briefly

¹ *British Medical Journal*, Feb. 8, 1896

² Ewald's report

ut, are that the majority of cases of simple hyperplastic struma are amenable to treatment, improvement being seen ordinarily in from two to four weeks. The younger the patient and the younger the disease, the better the prospect for permanent cure or decided improvement. Relapse should be guarded against by long continued use of moderate doses of the drug.¹

In tetany Following removal of the thyreoid, tetany and other forms of spasm have been observed in man and in the lower animals. The use of the remedy in tetany was therefore tried. Some successes, at least temporary, are reported—e.g., by Breisach, Levy Dorn. Others, as Jaksch and Gottstein, report no benefit or but slight and temporary improvement. It is probable that if tetany is due to varied causes, those cases only will be benefited that are due to the absence of the thyreoid antitoxin. Further observation on the thyreoid treatment of tetany is needed.

In skin diseases The remarkable effect upon the subcutaneous tissue of feeding thyroids in myxedema, the frequent desquamation, the replacing of the dry harsh skin by a softer and more natural integument, the growth and improved quality of the hair, have led to the use of thyroids in the treatment of skin diseases. Here reports are conflicting. Cases of psoriasis, of lichen, xeroderma, scleroderma, ichthyosis, lupus, etc., have been reported as improved or as having recovered, while negative results in similar cases have been obtained by others. As typical of these reports, and because the number of cases is unusually large, may be cited that report made by P. S. Abraham to the Medical Society of London. Of sixty five cases of psoriasis, eighteen were improved, of the remainder, some were worse, some unimproved, and in many the symptoms of thyreoidism compelled the observer to stop the treatment. He reported the same uncertain results in other cases of skin disease.*

So far is the report of the dermatologists from being unanimous, that we must refuse as yet to accept it, and declare that they must be granted further time before bringing in a final and conclusive report. Thyreoid therapy in skin diseases is still *sub judice*.

In mental disorders, epilepsy, etc. While there is a wonderful transformation in the mental state of the sufferer from myxedema after thyro-iodine has been administered, there is little theoretically or practically, to judge from the published reports, to warrant the hope of relief in psychoses not due to thyreoid inactivity. Perverted

¹ Proceedings of Fourteenth Congress of Internal Medicine reported in *Centralblatt für Klin. Med.* April 25, 1896.

² *British Medical Journal* Jan. 13, 1894.

mentality due to disease of the brain and not of the thyreoid will not respond to this treatment

In exophthalmic goitre The employment of thyreoid extract in exophthalmic goitre seems contra-indicated on every ground. Symptomatically the two diseases, myxedema and exophthalmic goitre, are antitheses of each other. In the one there is mental dullness, slow heart, lowered temperature, dry, harsh and thick skin, atrophic thyreoid, eyelids drooping over a sunken eyeball. In the other there is mental excitability, irritable and rapid heart, normal or slightly elevated temperature, moist, thin skin, enlarged thyreoid, prominent eyeballs with retracted lids. The most rational theory to-day is that exophthalmic goitre is hyperthyreoidia—too much thyreoid secretion. Overdosing with thyreoid extract produces "thyreoidism," closely akin in its phenomena to exophthalmic goitre, at times even to the presence of exophthalmos. The majority of clinicians who have employed thyreoid extract in Graves's disease have had no good results or have aggravated the symptoms. Starr, in the *Medical News* of April 18, 1896, gives an excellent summary of the reasons why myxedema and exophthalmic goitre are diametrically opposed and cannot, therefore, be treated in the same way. In the one case the aim is to increase thyreoid secretion, in the other to lessen it.

In this brief review of thyreoid therapy I have not aimed to present an array of authorities or of statistics. I have merely tried to present the conclusions one feels justified in drawing from a study of the work already done in the line of the employment of this remedial agent in various diseases. From such a study it seems to me that one may reach the following conclusions concerning thyreoid extract

- 1 It is curative in myxedema (idiopathic, cretinism, operative)
- 2 Many cases of obesity are cured by it
- 3 Simple hyperplastic struma, particularly if in the young, is frequently cured or improved
- 4 In 1, 2, and 3, the remedy has to be continued for an indefinite time, to prevent relapse
- 5 It may prove of value in some cases of tetany
- 6 In skin diseases it is of doubtful value, to say the least
- 7 The same is true of mental and nervous diseases
- 8 In exophthalmic goitre it is contra-indicated
- 9 The results are practically the same whether fresh glands, extracts or dried glands are employed
- 10 This is probably true also of the thyro-iodine of Baumann

METATARSALGIA, WITH A REPORT OF THREE CASES OF WHAT IS TERMED MORTON'S PAINFUL AFFECTION OF THE FEET

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The term *metatarsalgia* was originally used by Morton, of Philadelphia, to describe a painful condition of the foot, supposed by him to be a neuralgia of the internal digital branch of the external plantar nerve. The pain in the cases reported by him was at first limited to the fourth metatarso-phalangeal articulation, and in cases of long standing radiating pains along the tibial nerves and into the thigh were common.

The explanation of this offered by Morton, and the one usually accepted, is based on purely anatomical grounds and is as follows: "The metatarso-phalangeal joints of the first, second and third toes are on a line with each other, the head of the fourth metatarsal is found from one fourth to three eighths of an inch behind the head of the third, while the head of the fifth is three-eighths to one half an inch behind the fourth. Thus, while the joint of the third is slightly above, the joint of the fifth is considerably below, the metatarso-phalangeal articulation of the fourth toe. The joint of the fifth metatarsal being so much posterior to the fourth, the base of the first phalanx of the little toe is brought on a line with the head and neck of the fourth metatarsal and the head of the fifth opposite the neck of the fourth. There is slight lateral motion in the first three joints, but in the fourth we find great mobility, and in the fifth more than in the fourth. It will be found that lateral pressure brings the head of the fifth metatarsal and little toe in direct contact with the base of the first phalanx and head and neck of the fourth, and to some extent the head and neck of the fifth roll above and below the fourth. The external plantar nerve gives off superficial and deep branches, the superficial branch separates into digital nerves which supply the outer and inner sides of the fifth toe and the outer side of the fourth. Numerous small branches are distributed to the metatarso-phalangeal joint. To the peculiar position which the fourth metatarso-phalangeal joint bears to the fifth, the great mobility of the fifth metatarsal, which by lateral pressure is brought into contact with the fourth, and lastly the proximity of the digital branches of the external plantar nerve, which are under these circumstances liable to be bruised or

pinched between the fourth and fifth metatarsals, may be ascribed the neuralgia in this region "

The anatomical condition assumed in this explanation cannot be verified by post-mortem examination of the part in question In a careful study of the feet of twenty cadavers the writer was unable to find one in which the head of the fifth was more than a quarter of an inch posterior to that of the fourth metatarsal bone In most of the specimens examined the distance was not more than one-eighth of an inch In none could the head of the fifth be made by lateral pressure to impinge upon the neck or shaft of the fourth It may also be mentioned that the digital branches of the plantar nerves pass below the inferior transverse ligaments that bind together the heads of the metatarsal bones, and therefore could not, in the normal foot, be caught between the heads of the metatarsals or between the head of the fifth and the neck of the fourth as described by Morton

In reviewing the literature on this subject I have been able to find forty-eight cases recorded as metatarsalgia, or the so-called Morton's disease, including those reported by Morton in his first paper on this subject In many of the cases the pain was not localized in the fourth metatarso-phalangeal articulation, but varied as to its location, not being limited in all the cases to any one joint In one instance, in a case reported as Morton's disease, the pain was principally in the great toe and was temporarily relieved by amputation of the toe The pain returned, and was permanently cured by amputation of the second toe and the head of the corresponding metatarsal In another case reported under the same title, the pain was always referred to the second metatarso-phalangeal articulation, recovery following amputation of the toe The pain was greatest in most cases when pressure was made over the head of the third or fourth metatarsal bone

Trauma was an important etiological factor in fourteen of the cases reported In some the patient had fallen from a distance, striking on the feet, the result being immediate pain, with subsequent attacks of metatarsal neuralgia In other cases simply stepping on a stone or other hard body had caused the initial attack In a few instances the disease followed injury to the foot occasioned by tightly strapped skates Improper shoes was the only cause assigned in nine cases, in most of these cases the shoes were narrow, the heels high, and the soles flexible, in one case the disease was the result of wearing a very wide, heavy shoe

Thirty-five of the cases reported occurred in women, and thir-

teen in men In nearly all of the women improper shoes and immoderate dancing or walking while wearing narrow thin soled and high heeled shoes were judged to be the essential cause of the disease

In several, mountain-climbing seemed to act as a determining cause, even when proper shoes were worn

In a few cases the first symptoms appeared after recovery from a prolonged illness, especially where there had been a rapid increase in weight In only two was the disease bilateral, both of these being women in whom the symptoms of flat foot were well marked

Acquired flat foot was mentioned as being the cause in only two of the cases, although in Bradford's cases the inference may be drawn that he regarded all as due to weakening or relaxation of the tarsal arch

After careful consideration of all of the reported cases of so called metatarsalgia and of the origin of static flat foot, it seems as if the most plausible explanation of the cause of this condition is that it is only one of the early symptoms of an acquired weak foot which in many cases is only the first stage of flat foot

Heuter first pointed out that the pain in the early stage of flat foot is characteristic and localized to four points, one of which is the metatarso phalangeal articulations, especially the fourth and fifth If we accept Lorenz's explanation of the origin of flat foot, which I think we must, it is easy to see why the pain is so frequently limited to the fourth metatarso-phalangeal joint or to the external branch of the internal plantar nerve which lies close to its inner side He regards the foot as made up of two arches placed side by side The outer is composed of the os calcis, the cuboid, and the fourth and fifth metatarsal bones, it is strongly constructed, and rests with the heads of the metatarsals and the tuberosity of the os calcis on the ground, it is slightly asymmetrical, having for its crown the articulation of the os calcis and the cuboid, a point slightly posterior to its centre The inner arch is made up of the three inner metatarsals, the three cuneiform, the scaphoid, and the astragalus, the anterior end, composed of the metatarsals, rests on the ground, the posterior, represented by the astragalus, is united to the outer arch The crown of this arch does not correspond to that of the outer, it being a considerable distance behind and at a point about the junction of the posterior and middle thirds of the os calcis In the normal foot the weight of the body from above is transmitted through the astragalus to the outer arch Continued or excessive pressure from above together with a weakening of the ligaments causes at first a

depression of the outer arch, with finally a separation from the inner as the result of unlimited pronation. Lastly, as the result of this separation and the changes that take place at the point of union of these two arches, the inner becomes flattened, as is seen in well marked cases of flat foot.

It can readily be seen that the early flattening of the external arch will put upon the stretch that portion of the plantar fascia attached to the fourth and fifth metatarsal bones, thus causing pain.

The next important result would be the flattening of the anterior transverse arch as a result of the divergence of the longitudinal arches, which would allow the heads of the metatarsal bones to press upon the digital branches of the plantar nerves. The theory that flattening of the transverse arch is the cause of metatarsalgia was first advanced by Pollosson of Lyons, and later by Goldthwait of Boston, both, however, claiming that the flattening was the result of weakening of the transverse metatarsal ligaments.

In most of the cases of the so-called Morton's disease the pain is the result of the stretching of the plantar fascia. These cases improve rapidly when proper shoes are worn or when the foot is supported by a properly made brace fitted to the sole of the foot as recommended by Whitman.

In cases where flattening of the anterior transverse arch is of long standing, the constant pressure upon the digital nerves frequently causes inflammatory thickening of the sheaths of the nerves, and at times fibro-neuromata develop.

Out of the forty-eight cases referred to, eleven, including two in which the disease was bilateral, were operated upon. The operation advised by Morton, and followed by most of the subsequent operators, consisted in resection of the metatarso-phalangeal joint, or amputation of the corresponding toe with the head of the metatarsal. Neither of these operations is indicated, it seems to me, inasmuch as resection of the diseased nerve alone will give permanent relief. This operation is to be advised only in those cases that have existed for some time, and where the pain is distinctly limited to one of the digital nerves.

Within the last three years I have treated several cases of metatarsal neuralgia, three of which I deemed suitable for operative treatment, and in all the operation, which consisted in cutting down upon and resection of a portion of the external branch of the internal plantar nerve, was followed by permanent relief.

In two there were found fibro-neuromata attached to the nerve, one of which (Case 1) was three-quarters of an inch in length and

one-quarter of an inch in thickness. In one case the nerve sheath was thickened and on microscopic examination was found to present evidences of inflammation. In this case the disease was not of long standing and would in all probability have ultimately shown the same marked pathologic change as the other two. In only one of the cases heretofore reported was there a microscopic examination made of the tissues removed. In this case (Hoadley's) an inflammation of the sheath of the nerve was all that was found.

Case 1—Mrs J H C——, a widow, age 34, American. Nothing of interest in family history. Four years ago she suffered from a severe attack of articular rheumatism which confined her to bed for three months. Shortly after recovering from this illness she began to have severe pain, which was usually brought on by walking or standing, and which was at the beginning of an attack limited to a point between the heads of the third and fourth metatarsal bones, or at times to the head of the fourth metatarsal, of the right foot. These paroxysms would continue for several hours at a time, but could usually be relieved by removing the shoe and stocking and elevating the foot. At times it would be necessary to apply hot fomentations before the pain could be controlled. After an attack had lasted for a short time the pain was no longer limited to the point mentioned, but would be radiated along the posterior tibial and sciatic nerves up to the hip. These attacks gradually increased in frequency and severity, causing inability to walk for several weeks at a time.

Examination of the patient showed her to be a large, fleshy woman weighing about 240 pounds, apparently in good health. The feet, on examination, showed no external evidence of disease. Pressure over the inner space between the heads of the third and fourth metatarsal bones of the right foot would cause severe pain of a neuralgic character, which would last for some time after the pressure was discontinued. The imprint of the feet on smoked paper showed the right to be slightly flattened.

Operation was advised, and on November 12 the patient was anesthetized and after the usual preparation an incision was made on the plantar surface of the foot between the heads of the third and fourth metatarsal bones. The external branch of the internal plantar nerve being exposed, there was found a spindle shaped enlargement presenting a pinkish white appearance, which was a trifle over three quarters of an inch in length, and one-quarter of an inch in diameter at its thickest part. This was removed, and the wound sutured and dressed with the usual antiseptic dressing. One

week later the dressing was removed and the wound found united throughout. At the end of the second week the patient was allowed to walk.

I have since seen the patient several times, and she assures me that she has not experienced the slightest pain since the operation. Microscopic examination of the tissue removed showed it to be neuro-fibroma, the greater part of which was white fibrous tissue.

Case 2 —Mrs C E——, married, aged 36, applied at the surgical clinic at the Post-Graduate School in June, 1893, for treatment. Two years before she began to suffer severe pain in the right foot after walking or standing. The initial attack came on after she had been standing for several hours on a damp stone floor. The pain, which was referred to the head of the fourth metatarsal, gradually grew worse, and the attacks became more frequent. Examination showed no abnormality of the foot. Pressure over the fourth metatarso-phalangeal joint, or just to the inner side of it, caused pain. The foot was somewhat rigid, passive and active movements being limited, any attempt at standing upon it would cause severe pain at the point mentioned, with radiating pains in the posterior muscles of the leg.

The patient was anesthetized, and, after the usual preparation, incision was made between the heads of the third and fourth metatarsal bones, exposing a small tumor about the size of a large pea. This was removed, together with a piece of the digital nerve, and the wound sutured. Primary union took place. There has been no recurrence of the pain since the operation.

Case 3 —Mrs A C L——, married, age 24, consulted me first in the spring of 1894. Family and personal history negative. Never had any prolonged illness, and always had excellent health. One year ago, after having walked a long distance, she was seized with cramp-like pain in the left foot, which she at the time attributed to a badly fitting shoe. The pain would recur at irregular intervals, always after walking.

She was advised to wear a shoe with a heavy sole, which she did, without any improvement. Her condition finally became such that walking even a short distance caused her great distress. An operation was advised.

Under an anesthetic an operation similar to that described in the preceding cases was performed. The external digital branch of the internal plantar nerve, which was found somewhat thickened, was excised. The wound was sutured and dressed in the usual way. After the wound had united, the pain did not return.

Microscopic examination showed inflammatory thickening of the sheath

The diagnosis of metatarsalgia requires but brief consideration. The symptom already referred to, pain of a neuralgic character confined to the heads of the third and fourth metatarsal bones or the corresponding toes, may be caused by other conditions than those considered in this paper.

Després, of Paris, described a disease under the name of *maladie des gardiens de la paix*, or policeman's disease, which is characterized by pain usually on the plantar surface of the heel, but occasionally limited to the anterior part of the foot immediately under the heads of the metatarsal bones. According to Després, the disease is the result of a contusion of the periosteum or soft tissues of the sole. The pain usually disappears after rest, but as a rule recurs when walking is resumed. It may be mentioned here that neither metatarsalgia nor the disease described by Després occurs to any extent among soldiers. Dr. John S. Billings is authority for the statement that no case of metatarsalgia has been observed in the United States Army.

Syphilitic periostitis may be easily mistaken for metatarsal neuralgia. In any case where there are other evidences of syphilis or a history which would lead us to suspect syphilis, anti-syphilitic treatment should first be given a trial.

Painful conditions of the feet which might be confused with metatarsalgia, frequently are reflex in origin, this is especially true in the diseases of the genito-urinary organs. Many interesting cases are recorded where stone in the bladder or kidney, or chronic inflammation of the bladder and urethra, has caused severe neuralgic pains that were in a few cases limited to a small area on the plantar surface of the foot, the pain is not so much of a neuralgic as of a burning character, again, the pain varies in location, seldom being constantly referred to the same spot, finally, a pressure over the seat of pain does not increase its severity.

CONCLUSIONS

- 1 That what is known as metatarsalgia is not in the beginning a distinct pathologic entity, but rather an early symptom of static flat foot. In cases of long standing, irritation of the plantar nerves by pressure from flattening of the transverse metatarsal arch may cause an inflammation of the nerve or even in some cases the development of neuro-fibroma.

- 2 That most of these cases can be permanently cured by fol-

lowing the treatment usually employed in beginning flat foot, *e g* , systematic massage, gymnastics, and the use of a properly fitted shoe, and in some cases application of a metallic brace to the sole of the foot

3 In cases of long standing where there is well marked pathologic change in one or more of the branches of the plantar nerves, resection of the nerve should be performed, the more radical operations, such as resection of the metatarso-phalangeal joint or amputation of the toe, are not indicated

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ETIOLOGICAL, CLINICAL AND PATHOLOGICAL FACTORS IN DIAGNOSIS AND RATIONAL CLASSIFICATION OF INFECTIOUS, TOXIC AND ASTHENIC DISEASES OF THE PERIPHERAL NERVES, SPINAL CORD AND BRAIN

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Even the latest text books keep up with a remarkable conservatism the time honored subdivision of nervous diseases into affections of the peripheral nerves, the spinal cord, and the brain. This plan was the natural outcome of the great progress of pathological research bearing on the localization of disease, and must be explained, too, by the fact that pathological anatomy was far advanced before anatomy had left behind a purely topographical manner of looking at the nervous system. The anatomo-physiological localization opened up with the formulation of the theory of the neuron by Forel and His; it had its forerunner in the great English neurologist Hughlings Jackson, who established in his three-level theory a well founded and fruitful working hypothesis before the anatomical substrata were fully recognized. Hughlings Jackson's system of nervous diseases adapted itself wonderfully to the requirements of an understanding of clinical questions, even where autopsies were not obtainable, while the majority of the discoveries of the German and French schools had the great advantage of depending largely on the evidence furnished by post mortem study, though perhaps not so much on a skillful philosophical analysis and reconstruction of symptom complexes in the living.

A further step of the utmost importance, not only from a medical but from a general hygienic point of view, has been very elaborately made by P. J. Moebius, who gives us in the 180 pages of his *Outlines of the Nervous Diseases* (Leipzig, Abel, 1893) the first complete attempt at classifying nervous diseases from an etiological point of view. In its present form it may seem to the critic to be somewhat too much given to generalization, just as H. Jackson's three level theory at first transcended the appreciation of conservative readers. But I venture to say that the method of Moebius gives prominence to a line of thought which, when properly confirmed by anatomo-physiological investigations, will cut just as deeply into the leading thought of practical neuro-pathology as bacteriology did into the knowledge of surgical diseases. It surely will call for

studies of the most fundamental importance, and, from a sociological point of view, help to undermine many erroneous and fatalistic views on disease

In this short paper I should like to go a little further than Moebius or Hughlings Jackson has gone, by showing how harmoniously the modern histological views work with the hypotheses started by them. The obscurity of nervous diseases seems to give way more and more, although a great deal remains to be done. What we have now, seems more logical than what was taught years ago, and progress in the logical arrangement of our present knowledge will need lead to rational criticism and the formulation of new and sounder theses.

A review of clinical and anatomical neuro-pathology would to-day comprehend

A General neuro-pathology 1 The histological architecture of the nervous system, from the embryological, purely histological, pathological, and comparative-anatomical points of view

2 The symptomatology of normal and pathological function of the nervous mechanisms, with an analysis of the localization, as far as possible with reference to the results obtained in the histological portion

3 A sketch of general pathology of the nervous system (a) primary disorders of the life of nerve-cells and nerve-mechanisms, (b) secondary alterations of the nerve-mechanisms through diseases of the circulatory apparatus (endarteritis, aneurysm, thrombosis, embolism, hemorrhage, edema, and hydrocephalus), inflammatory and infectious changes starting from the mesoblastic portions (membranes, sheaths of blood-vessels, etc.), including meningitis, abscess, tuberculosis, gumma, etc., and finally the purely traumatic disorders (pressure, etc.), (c) tumors and malformations of the nervous system

4 General etiology

B Clinical analysis of symptom-complexes, practically following the plan of Moebius

In the short space allotted to me, I shall try to sketch a few points with regard to the most frequent exogenous nervous diseases depending on infection or toxemia. Allow me to recall only a few elementary facts

The peripheral nerves consist of two different groups of elements

1 The motor nerve elements their cells are located in the anterior horn of the cord or in the corresponding motor nuclei of the

brain axis, their fibres form the anterior spinal roots and the motor cranial nerves, and terminate in the muscles

2 The sensory nerve elements their cells form the intervertebral ganglia, they send one process to the sensory surface (skin, etc.), the other one into the cerebro spinal axis. The latter bifurcates, one branch going a short distance caudad (one or two segments), the other branch helping to form the posterior columns, running upwards to the end of the cord, ending in the nuclei of Goll (largely for the legs) or Burdach (largely for the arms). The sensory cranial nerves have a similar arrangement from a ganglion outside of the brain axis, the Gasserian, pneumogastric or glossopharyngeal ganglion, each cell sends a fibre towards the sensory surface (peripheral fibres) and another branch grows into the brain axis. The latter bifurcates, but the long branch grows backwards, towards the most vital portion of the medulla oblongata, and even into the cervical cord.

While a motor nerve element has its point of origin in a single cell of the neural axis, and its end in numerous muscle fibres, a sensory element has its point of origin in the intervertebral ganglion cell, a cutaneous field of distribution, and, before all, a very broad distribution in the brain axis and spinal cord, extending over many segments. This explains why a prick of the sole of the foot can call forth a reflex action of infinitely more motor cells than could be expected if the sensory nerve fibre came from a cell in the posterior horn of the cord. The few fibres irritated peripherally carry the impulse not only to the anterior horn cells of the same segment of the spinal cord into which they enter, but also over the neighboring segments, and in this they are aided by the processes of cells which are located in the centre and in the posterior horns of the gray matter and form the so-called *groundbundles*, the association tracts between various segments. The reflex arc of each segment would therefore consist of

- 1 The peripheral sensory nerve element,
- 2 The intermediate cells or association elements, and
- 3 The peripheral motor elements

This arrangement is represented in each segment of the spinal cord and also in the brain axis, where we can easily find similar functional segments

1 With the sensory nerves of the thoracic viscera and the organs at the beginning of the alimentary canal is grouped the motor apparatus for the movements of the larynx, tongue, and

2 With the auditory nerve we find associated the motor apparatus for the movements of the ear and superficial muscles of the face, and also the external rectus of the eyeball, which may move the eye to the side from which sounds are heard—auditory-facial-abducens segment

3 The group of sensibility of the mucous membrane of the mouth, and mastication The other branches of the trifacial nerve overlap with the neighboring segments—the upper branch with the “facial” segment, the nasal fibres (sneezing reflex) even with the great portion of the respiratory muscles, etc

4 The sensory-motor group of vision occupying the mid-brain and the posterior part of the fore-brain—optic tracts and third and fourth and also sixth nerve

5 The olfactory apparatus stands isolated

These elements compose the lowest level of Hughlings Jackson, also called the reflex level The peripheral nerves—motor, sensory, and sympathetic—are a part of it, only a part Hence the confusion between certain forms of myelitis and of peripheral neuritis Disease shows itself in a disorder of function, the symptoms are due to a disorder of an apparatus, and since the apparatus involves the peripheral nerves proper *and* the spinal cord, we need not wonder at the confusion between disease of the cord and disease of “peripheral nerves” We should simply speak of disease of a level, until we can locate it precisely in the so-called reflex arc

Each of the functional segments of the cerebro-spinal axis has a further representation—as far as we know, exclusively concerned in what we call voluntary and automatic activity This representation is highly developed for highly differentiated mechanisms, as the movements of the tongue and hands, less so for the movements of the legs The peculiarity of this representation is seen at once when we compare a case of hemiplegia with a case of destruction of the brachial or lumbar plexus In the latter case the limb is anesthetic and completely paralyzed, in hemiplegia, only certain voluntary movements have become affected

Of this middle level of Hughlings Jackson we know the motor path to consist of the pyramidal cells and tracts coming from the excitable portions of the cerebral cortex, the sensory path is given in the fillet and the connections between the thalamic ganglia and the cortex It is very probable that the cerebellar representation of the various segments would properly find a place in this middle level It is very highly developed for the lower extremities and for the “auditory” group, for instance, but all the other segments are

represented as well. On account of the limitation of time and space we must, however, dismiss it for further discussion elsewhere.

The highest level of Hughlings Jackson's plan is difficult to outline anatomically. As far as we know, it would comprehend all those mechanisms of the cortex which do not belong to the middle level, we would find in it the highest nervous mechanisms, including those which form the material basis of psychical activity.

While we admit that traumatisms (including tumors and abscess) may bring about disorders depending on purely *topographical* conditions, a review of the non-traumatic nervous affections shows a remarkable constancy in their distribution over mechanisms, irrespective of any other principle than localization of functional apparatus. We find that certain poisons affect largely the lowest level motor mechanism, as, for instance, lead, or the toxin of diphtheria, or the poison which underlies the acute spinal infantile paralysis (poliomyelitis acuta anterior), or we see that the infection with syphilis forms the foundation for an affection of the lowest level sensory elements in their intra-spinal course (locomotor ataxia), or again, we find that alcoholism causes both motor and sensory disturbance in the lowest levels. Or we find the motor path of the middle level affected exclusively, as in lateral sclerosis, or both the middle-level and the lowest level motor paths are involved and we obtain the clinical picture of amyotrophic lateral sclerosis.

There is another point worth consideration. The various poisons often choose only limited parts of the various levels. Lead poisoning attacks the extensors of the arms (wrist drop), "alcohol neuritis" involves largely the extensors of legs and hands (foot-drop and steppage), the diphtheria poison the muscles of the palate, of accommodation of the eyes and the muscles of the legs. Or in locomotor ataxia, the metasyphilitic degeneration of the lowest level sensory fibres, we see usually the elements of the lumbar segments first involved—sexual apparatus and legs, manifested by absence of knee jerk, etc.—or the ulnar side of the hands and arms is first attacked or, in others, there is first atrophy of the optic nerves. This cannot be accidental, and can be partly explained on the ground of the following hypothesis. The poison underlying the production of locomotor ataxia acts almost exclusively on the sensory elements of the lowest level. Those elements which have been most exposed to debilitating influences fail first. In the case of lead poisoning we would say that the extensors of the wrist-joint are exposed, although we do not know the whole course as yet.

Finally we must briefly consider a few pathological points

We recognize the following fundamental rules. A nerve element (cell with processes) may be involved in disease of surrounding parts, or may suffer from primary disorders. The latter group of affections alone shall be considered here. In the life of the nerve element we recognize periods of activity and periods of rest, or periods when materials are used up and fatigue is produced, and periods when the process of recuperation goes on. These periodical changes manifest themselves in change of function and of histological appearance—the latter at least as far as the cell-body is concerned. Of changes in the terminations and the nerve fibres during fatigue we know nothing. In pathological anatomy, however, the degeneration of nerve fibres has been recognized before the degeneration of cells was well known. This is due to the fact that histological technique for the study of the fibres has been developed more rapidly than that for the minute study of the cells, while now we know that changes in the distal ends of the nerve element always have an influence on the cell-body itself. For a number of years there was a lively discussion on the question whether certain forms of paralysis were due to peripheral neuritis or to affection of the motor nuclei and the anterior horns of the cord. Charcot claimed that he found atrophy of the nuclei themselves, Dejerine, that he found peripheral neuritis that explained paralysis and wasting of muscles in certain cases of locomotor ataxia. Both had correctly observed, but neither realized that after all they were speaking of an affection of the same elements. We would now say the peripheral or lowest-level motor elements undergo degeneration, sometimes the fibre seems more affected, sometimes the cells, while a lesion of the fibre alone or of the cell alone seems to be impossible. A week ago I had an opportunity to examine a specimen of ordinary facial paralysis of ten days' standing, probably depending on middle-ear disease. The cells of the paralyzed facial nucleus had undergone the characteristic changes, which will be described in a special account, there was little reactive change in the ground substance of the nucleus, while changes began to show in the fibres. Thus a "peripheral" and a "nuclear" paralysis are not such different entities as was thought five or ten years ago. (Whether there is a constant and essential difference between the mere dissolution of the chromophilous portion of the nerve cell and the affection of the [fibrillary] achromatic substance, called trophoplasma by Marinesco, or whether the difference is merely one in degree, is not quite decided at this moment.)¹

Notwithstanding our meagre evidence in favor of such an

¹ *Revue Neurologique*, March 15, 1896

occurrence in the lowest level cells, we must maintain that the terminations of nerve fibres are pre-eminently liable to undergo degenerative changes. Certain clinical observations, the so-called acroneuritis of arsenic paralysis (anesthesia and paresthesia beginning at the ends of the extremities, gradually progressing towards the root of the limb), and the findings in the spinal cord of general paralitics where sometimes the lower parts of the pyramidal tracts are affected while the higher ones are intact, lead to the conclusion that a nerve-termination is the more susceptible to disease, the remoter it is from its cell. This must also be taken into consideration in the explanation of the distribution of disease within a level.

Hand in hand with changes in the nerve elements themselves, vascular changes take place which play a most important rôle in the spinal cord, since hyaline thromboses, small hemorrhages, or even larger hemorrhages, have been found, causing the pathological appearances of so-called myelitis. There are many reasons for belief that these vascular disorders are not primary—not the cause of the conditions—but mere concomitants, if not simply a consequence of the “parenchymatous” alterations. Among these reasons I should mention the fact that the hyperemia, or later on also the proliferation of neuroglia (see Weigert’s article in the *Centralblatt für Allg. Pathologie*, 1890), are so sharply restricted to the functional system affected, the pyramidal tract, or a certain diseased nerve-root, only where the “intoxication” of the nervous system is very extensive, as in certain cases of “acute delirium,” or in rare cases of diffuse “myelitis,” does the delineation become difficult, for reasons illustrated by the clinical picture.

If we now pass over to the symptomatology of the levels mentioned, we can make the following statements. All objective symptoms of the nervous system are limited to alterations of motility and of sensibility. The nervous system forms the link between these elementary manifestations, the sensory surface being the inlet for impressions, the muscles the outlet of nervous energy. Thus we study the motor side entirely from the manifestation of the muscles, and observe the following fundamental qualities of muscles.

- 1 The response to voluntary, or indirect involuntary, or direct involuntary stimulation—in other words, contractility in voluntary action, in reflex action, or in direct mechanical or electrical stimulation.

- 2 The state of nutrition.

From these points of view the muscles form a physiological unit with motor nerve elements of the lowest level, as we shall see

presently Over this neuro-muscular lowest-level apparatus stands next the middle-level motor path, the pyramidal system, over this again the highest level, the presumable basis for the concepts of activity The impairment of voluntary movement in paralysis of a leg is at first sight the same in lesion of any of the three segments, but an observation of the individual muscle brings out a marked difference

(a) In psychical or hysterical paralysis we find usually absolute inability to make any movement with a paralyzed limb, but, since the automatic inhibitory regulation by the pyramidal cells and tracts is not involved, we have no typical increase of the tension of the muscles the limb is flabby and relaxed, and the reflexes which depend on the tension are about normal, and since the lowest level is not involved at all, the muscle is not interfered with in its nutrition and electrical irritability In other cases of hysteria we find simply paralysis for certain innervations, as for standing or walking, while the muscles can supply any other functions (climbing, etc) even voluntarily

For obvious reasons, these highest-level disorders come hardly into question in the group of diseases to be spoken of here, but they may come in as complications

(b) With lesions of the middle level we meet far oftener Whether the lesion be in the leg centre, or involve the leg fibres in the internal capsule or even lower down, we find invariably the same symptoms in acute onset a more or less complete paralysis, in slow onset or after a certain adaptation, an affection of certain muscle groups for certain movements If the lowest level be intact, we find that the muscles do not atrophy, show a tendency to rigidity and increased myotatic irritability, and have no reaction of degeneration

(c) Peripheral paralysis usually, but not always, affects groups of muscles supplied by the same nerve, and we find rapid atrophy, electrical reaction of degeneration, and absence of reflexes There is essentially the same group of motor symptoms where the nerve fibres alone, and where their cells themselves, are primarily affected, it is, however, of practical importance to remember that damage to peripheral motor fibrils will involve at the same time the sensory fibrils of the same region, while primary and prevalent affection of the cells is more frequently not associated with sensory disturbance, the motor symptoms, the behavior of the muscle, remain the same in either case

The following table gives a review of these symptoms

MOTOR SYMPTOMS

	Highest Level (psychogenous)	Middle Level (central motor path)	Lowest Level (peripheral motor path)
I Alteration of function (voluntary movements)	Involving the entire limb (e.g. both legs) or only special functions: ataxia-abasia, etc.	Involving certain groups of muscles co-ordinated for special movements and joints.	Involving groups of muscles supplied by one nerve or other wise typical groups
II Condition of muscle	Muscle flabby or normal not atrophied.	Tendency to rigidity. Usually no atrophy	Flaccid paralysis. Atrophy
III Myotatic irritability (knee-jerk, etc.)	Normal or slightly (atypically) abnormal	Exaggerated	Diminished or abolished
Ankle clonus		Ankle clonus present	Absent.
IV Electric reaction	Normal	Normal	Reaction of degeneration

Only one special feature of lowest level sensory disturbance deserves further notice, namely, the occasional occurrence of an isolated—and, when not isolated, frequently marked—form of anesthesia which produces ataxia, as far as we know now, this is usually an affection of those lowest level sensory elements which are more especially connected with the cerebellar middle-level system

We should analyze in a similar way the positive motor symptoms, as twitchings and convulsions. This would, however, add little to a brief sketch

The sensory sides of the three levels are difficult to analyze, owing to the purely subjective evidence by which on the whole we have to go. We depend on the distribution, the coincidence with, and form of, motor disturbances, and only to a slight degree on the intrinsic quality of the sensory disorder. Thus we know that a sensory defect due to a higher-level lesion has been found to be characterized by the predominance of the difficulty in psychical interpretation of sensations, while peripheral disorders leave the ability to recognize objects by touch, etc., remarkably less affected (Wernicke). This can, however, not be of much practical use now.

A few words on the doctrines of etiology may lead us over to the final point. The neuroblastic nervous affections—i.e., those not depending on traumatism in the widest sense of the word, nor on mesoblastic diseases—may be classified as caused by infection, toxemia, or exhaustion. The connotations of these three words are vague and require a definition.

We find infection spoken of as a cause of nervous disease

1 Where a nervous affection comes on by itself and with the characteristic course of symptoms of a typical infectious disease. We may classify under this head, and with a varying degree of

probability, anterior acute poliomyelitis, certain cases of acute myelitis, perhaps tetanus and hydrophobia, beri-beri, pellagra, and very probably chorea, while meningitis, the real syphilitic nervous affections—during the secondary period and later as gummata, etc.—and leprosy, etc., are primarily mesoblastic and do not properly belong here

2 The other group consists in the post-infectious forms where the toxemia caused by the infectious disease produces the affection of the nervous system diphtheria with post-diphtheritic paralysis, syphilis with the metasymphilitic affections, as locomotor ataxia and parietic dementia, malarial and phthisical neuritis, acute delirium after typhoid fever, variola, and pneumonia These forms of infectious nerve affections might properly be called toxic

The toxic affections are very frequent and depend on the absorption of poisons, inorganic or organic, especially lead, arsenic, mercury, alcohol

Asthemia as an etiological term is probably the vaguest and most objectionable one I prefer it, however, to the more assumptive term "auto-intoxication," and hope that the plain admission of our ignorance will keep the duty of investigation more effectually before our minds than a term like "auto-intoxication," which threatens to become almost as "suggestive" and soothing as the term "rheumatic" used to be, and is to this day. It allows us further to include in a natural plan certain occupation neuroses

These considerations on general neurological problems seemed desirable because of a constant difficulty met with in the understanding and use of the words myelitis, peripheral neuritis, Landry's paralysis, etc It is just three years since I saw a young man with plain polyneuritis presented to a class as a case of masturbational myelitis, it is not rare to find certain "obscure" nervous affections called myelitis and functional myelitis, which seem to be far from any actual "inflammation of the spinal cord," and further, we frequently come across cases where "peripheral" and "myelitic" symptoms are so intimately mixed that none of the customary terms of to-day can be justly employed Moreover, if we resort to the text-books in our difficulty, we are forced to look for one feature (polyneuritis) in one part, for other features (those of Landry's paralysis, which belong between the "pure" polyneuritis and the "pure" myelitis) in a sort of appendix, for myelitis in another chapter, and in the end we may find nothing that is quite like our case, although it may depend on the same principles as the text-book cases

Thus I saw a case of arsenical paralysis in which there was sensory disturbance in the legs, weakness of the extensors of the leg, absence of the knee-jerks, and on one side ankle clonus. This combination would be very puzzling if viewed from the polyneuritic point of view, but loses its difficulty under a broader aspect. All the symptoms, with the exception of the ankle clonus, were explained by the ordinary findings of polyneuritis, called acro-neuritis on account of its progress from the ends of the extremities towards their roots. The knee jerks (extensors!) were absent before the muscles of the calf were involved on the left side, so that an alteration of the middle level could show itself by the presence of the ankle clonus. As the case progressed the ankle clonus on the left side disappeared, and the rapid wasting of the calf showed evidence of affection of the lowest level motor elements for the calf muscles. This case and a case of Landry's paralysis published by Dr. Diller and myself in the *American Journal of the Medical Sciences* (April, 1896) show that we are usually unable to detect affections of the middle level as soon as the lowest level is deeply affected, since the lowest level is the foundation and the organ of expression for both the middle and the highest level. This is a very serious point in matters of prognosis.

For the degenerative changes due to the influences referred to, I should propose the general term *neuro-tabes* (nerve-emaciation), whether it be amenable to repair or not. In going over the field of the symptom-complexes produced by various causes, we find on the one hand a fairly typical complex for each cause, as far as the level and even as far as the distribution within the level is concerned, the acuter the process, the oftener we find it spreading into other levels.

I. Poisons which cause lowest level affections with almost exclusive involvement of the motor side—lowest level motor *neuro-tabes*.

1. Acute anterior poliomyelitis, or acute infantile paralysis degeneration of the anterior-horn cells, motor fibres and muscles for one extremity, rarely for two, practically never involving the sensory side, and hardly ever affecting the middle level. Strumpell's acute encephalitis is, to judge from the analysis by Oppenheim, hardly proven to belong to the primary affections of nervous elements, but would require further study from this point of view.

2. Lead poisoning affecting largely the motor elements belonging to the musculo-spiral, more rarely those of the ulnar and median nerve, in rare cases only the supinators and the biceps, brachialis internus, and deltoid are involved (Remak's type). It rarely affects

the *nervus peroneus*. In very severe intoxication the paralysis may become generalized, and especially in these cases highest-level affections—*encephalopathia saturnina*—are marked, the minute-anatomy of which is not clearly known.

3 Apparently we should be forced to put down here the cases of Landry's paralysis. The usual types have been found to be largely polyneuritis, many of them also showed sensory disturbances and reaction of degeneration of the muscles—thus an analysis of the cases leads one to the conclusion that Landry's paralysis is a symptom-complex occasionally met with in acute nerve-intoxication (acute *neuro-tabes*), perhaps merely a phase, usually transitory, rarely persistent throughout the disease. A case in which the symptom-complex lasted very long without a material change in type is referred to above, slight affection of the middle level (pyramidal tracts) was found.

4 Post-diphtheritic paralysis, involving most frequently the muscles of the palate, of the eye (*M. ciliaris*, rarely *abducens*), of the pharynx and larynx. Much more frequently the knee-jerk is lost. Later paresthesia may set in, and a diffuse paresis with hypo-esthesia, especially also with incoordination, and the so-called diphtheritic pseudo-*tabes* develops. This secondary symptom-complex forms indeed the most remarkable instance of a transitory, usually curable, counterpart of the locomotor ataxia of metasyphilitic origin.

II Lowest-level affections with both motor and sensory disturbance

1 Certain professional pareses

2 The typical infections or toxic or asthenic polyneuritis, paresthesia and anesthesia of the extremities and paralysis usually beginning with the extensors. The most prominent forms are

Alcoholic neuritis with great tendency to involve the higher levels—deliria and typical "polyneuritic" psychoses being most frequent in this form.

Arsenical neuritis—acro-neuritis. In a case of Henschen's there was also plain affection of the "spinal cord" with a (secondary?) hemorrhage. In a case lately observed the cranial nerves became involved and delirium set in (asthenic delirium?).

"Polyneuritis" following other infectious diseases—tuberculosis, malaria, influenza, typhoid, etc.

Endemic forms *beri-beri*

Anemia and cachexia (auto-intoxication?), diabetes, senility, etc., produce similar clinical symptom-complexes.

Finally a certain number of cases in which the etiology is difficult to ascertain, including especially many cases of the Landry type, etc

III Lowest level affections, chiefly sensory The prototype of this group is one form of the metasyphilitic nerve-intoxication, the locomotor ataxia, affecting largely the intra spinal and intra cerebral processes of the lowest level sensory elements, and in rare cases the lowest level motor elements (see above), in still rarer cases also the pyramidal tracts ("combined sclerosis"), and finally going over into the pre-eminently highest-level type—general paralysis

(For the reasons for my position regarding the metasyphilitic character of locomotor ataxia and general paralysis I should refer to the papers of Moebius and of Hirschl The latter¹ succeeded in proving that in the cases of gummatous affections in the clinic of Lang, about the same percentage of cases were unable to give a satisfactory history as those with general paralysis)

IV Unknown influence causing a chronic degeneration of the terminations of the middle-level motor system—lateral sclerosis, sometimes involving also the lowest level motor system amyotrophic lateral sclerosis

V Finally, the alienist may be allowed to add as highest-level forms of acute intoxication or exhaustion those "mental diseases" which Kraepelin classifies as delirium of intoxication or exhaustion, and also those cases of general paralysis which run too rapid a course to have marked middle and lowest level symptoms

It is possible that this sketch will seem rather premature but as a working hypothesis it may offer some help and stimulus to elucidate important problems.

CONCLUSIONS

1 The natural method of clinical analysis is to compare symptoms of nervous affections first of all with physiological activity and function If previous anatomical experience has taught us the localization of the bearers of the function, of the nerve elements, we proceed next to a *secondary* conclusion regarding the localization of the mechanism and the point of disturbance within it

2 The peripheral nerves form a topographical entity, but are in no way physiological entities They are merely part of the lowest level physiological mechanism

The spinal cord is not a physiological unit It contains elements of both the lowest and the middle level Hence symptoms

¹ *Jahrb für Psych*

should not be referred to the "cord," but to the level to which they belong

The brain contains in its axis lowest- and middle-level elements, in its cortex middle- and highest-level elements. Hence the difficulty in a perfectly satisfactory analysis of many complex brain-symptoms

3 Nervous diseases are appropriately classified as topographically caused, or as lesions of functional apparatus more or less irrespective of topography

4 Certain infectious, toxic and asthenic nervous diseases form a group which had best be treated irrespective of topography, but from an etiological and physiological point of view

5 The etiological principle should be put into greater prominence, both on account of the superiority of the pathological principle and as a means to promote rational medicine

ELECTROLYSIS FOR THE REDUCTION OF SPURS OF THE NASAL SEPTUM¹

BY W. E. CASSELBERRY, M. D. CHICAGO

Professor of Laryngology and Rhinology in Northwestern University Medical School (Chicago Medical College) Laryngologist and Rhinologist to St. Luke's Hospital
Laryngologist to Wesley Hospital etc.

Electrolysis is a process of chemical disintegration of tissue under the influence of a galvanic electric current, and is not to be confounded with galvano cauterization. The current strength necessary is from 15 to 40 milliamperes and 8 to 20 volts, which may be supplied by a twenty cell battery, but the author has adapted the Edison electric light circuit to the purpose by means of lamp resistance and the McIntosh current controller. The duration should be from six to eight minutes.

The chief difficulty in the reduction of cartilaginous spurs is to determine exactly when sufficient destruction has been effected, and care guided by experience is necessary to prevent perforation of the septum—a simple deviation or bending of the septum cannot be corrected or straightened by electrolysis, and the use of this agent in such a case can only result in perforation. If in addition to the deviation there is also a spur—that is, conjoined deviation and excrescence—the thickening may be reduced or removed by electrolysis, but the deviation will remain.

The pain is trifling, but the sensation tends to cause syncope.

The bipolar method, by which two needles, one representing each pole, are inserted into the spur, is preferable. The author's needles, devised for the purpose, are of irido platinum, fixed to a convenient handle, but ordinary heavy steel sewing needles may be used.

Sixteen cases are reported, classed in three types according to the composition and location of the spur and the degree of success attained, from which it is concluded that, while electrolysis is effective in many instances, its scope of application should be limited in accordance with the following principles:

1. Strictly cartilaginous spurs can be thoroughly removed by electrolysis—one, two, or even three operative sittings being required. It is more tedious and less brilliant than the surgical method, but is not accompanied by liability to hemorrhage. It is not to be endorsed as a universal substitute for the surgical method in even this limited class but is a serviceable measure for exceptional individuals of this type and of type II, *e. g.* (a) for cases of

¹ Abstract.

minor degree, small spurs of cartilage, or of cartilage and bone, and thickened areas, which seem scarcely deserving of surgical treatment but which one would like to see resolved for the sake of the additional nasal space and better drainage which would thereby accrue to the patient, (*b*) for patients of delicate physique and those of highly sensitive and uncontrollable nervous organization, (*c*) for "bleeders," (*d*) for those who decline surgical interference

2 As demonstrated by the cases reported under type II, it will not thoroughly remove spurs which belong to the large class of mixed cartilaginous and bony substance, but it will reduce them in size. The majority of such cases would, therefore, better be treated surgically, as being the more thorough method, but instances will arise, as above indicated, in which, the surgical method being inexpedient, benefit may accrue from the use of electrolysis

3 As demonstrated by the cases reported under type III, large spurs composed mostly of hard bone cannot be successfully treated by electrolysis, for the reason that needles cannot be caused to penetrate properly, and further, it is doubtful if the process is adequate, even if the needles should penetrate, to the resolution of hard and dense bone, *en masse*

4 Spur or excrescence, and not deviation of the septum, is the subject of this paper. Electrolysis is powerless to correct deviated septa of any form

BOOK REVIEWS

A TREATISE ON THE NERVOUS DISEASES OF CHILDREN By B Sachs M D
New York 1895

This book of 666 pages is doubtless already an inmate of the libraries of most of the neurologists of the country and we trust, of those particularly interested in pediatrics. It is hoped that he who needs the work most of all the general practitioner, will not be slow in following the example of the specialists for it is destined to accomplish a great good in making more general a clear conception of the intricacies of neuro-pathology, an exact knowledge of correct diagnostic methods and a broad comprehension of rational therapeutics. It is very apparent throughout that the author has richly profited by post-graduate teaching. The work is eminently scientific, and yet admirably adapted to the needs of a busy practitioner.

We note with pleasure that the subject matter is everywhere brought fully up to the present time, for too many writers of text books in endeavoring to avoid mooted points give us the pabulum of twenty or thirty years ago. It is true that in many questions still under discussion the author simply gives his opinion without any attempt to prove it correct—a method of writing that is at times unsatisfactory but it is equally true that the opinion of a mature, thoughtful and well posted physician is ordinarily of greater value than an array of statistics or clever polemic without detailed evidence.

One can readily read between the lines that the book is the work of a neurologist, and not of a pediatrician, as the author frequently wanders into the domain of adult life (e g a discussion of Huntington's chorea, which occurs only after adolescence), and perhaps more frequently still leaves the reader in doubt as to whether he is treating of the disease under consideration as affecting children or adults.

Instead of a mass of references of generally unknown value, a short list of the most important and latest contributions to the subject, amply sufficient for any one who wishes to pursue the study further, is appended to each chapter.

In reviewing the separate chapters we are confronted by an embarrassment of riches, with remarkably few sins of omission and fewer of commission. There is here and there evidence of somewhat careless composition and hurried proof reading, but such defects are usually incident to a first edition and in this case they are few and do not affect the value of the whole. The following disjointed comments relate simply to what more particularly attracted our notice in a rather careful reading of the book.

The text of the first chapter on Methods of Examination should be read and reread by every general practitioner and many neurologists and the tables giving the function, innervation and nuclear representation of the different muscles with the symptoms of deficient action and the diseases in which they are severally implicated will be valuable for ready reference as well as for more lasting information. They are complete, accurate and well condensed.

From the chapter on Eclampsia we quote. The influence of gastro-intestinal irritation is well illustrated by the convulsions occurring in the course of

an acute or chronic intestinal catarrh, in the ordinary summer diarrhea of young children, or with the exhausting chronic diarrhea in older children " But we cannot concede that such convulsions are often due to gastro-intestinal "irritation " The infection, exhaustion and circulatory disturbances inseparable from these conditions are surely more important elements

We are glad to see emphasized the close kinship of laryngismus stridulus and infantile convulsions, and their frequent association with rickets, although we can scarcely find, with the author, its cause in "the hyperemic condition of the brain in rickets" which is "of a piece with the hyperemic condition of other structures " A practical point is that "convulsions occurring at the onset of acute diseases are much more apt to pass off without leaving a trace behind them than are those convulsions which occur during the further course of the disease "

We would much like to see the following statements a part of the everyday knowledge of the profession "Cases of hereditary (idiopathic) epilepsy are not nearly so frequent as they are supposed to be If we examine carefully into the early history of our cases, we shall find frequently that the child has either sustained some traumatic injury to the brain or has acquired some cerebral lesion early in life The paralysis and other symptoms which were due to the same lesion may have disappeared, but the epilepsy remains " "Partial epilepsy may at any stage of the disease, and at any stage of an attack, become general, so that after the lapse of time the convulsions due to organic disease of the brain can in no wise be distinguished from those which are presumably hereditary and idiopathic "

The tables of differential diagnosis between epileptic attacks, fainting spells and hysterical attacks are neither very complete nor very accurate

Surgical interference in epilepsy is condemned, but Dr Sachs in a more recent contribution has somewhat modified this position and would now operate in a few selected cases

After stating that "true hysteria is a relatively rare condition in adults," and much rarer in children, the author goes on to write one of the best chapters in the book, revealing a large experience in this disease He mentions particularly what has been insisted upon by the reviewer, that hysterical symptoms often complicate organic disease

In the treatment he lays stress on separating the child from the neurotic parents to whom it owes its existence, but "only the more intelligent parents can be made to understand that an utter stranger, if properly qualified, may train a child far better than its own mother can " We rejoice in his caustic condemnation of "giving valerian or asafetida or morphine to children or adults whenever they present symptoms which smack of hysteria "

Regarding the differential diagnosis of hysterical from other paralyses, the following is worth quoting "If the physician is aware that flaccid paralysis of a single group of muscles, or of one or more extremities, is generally associated with changes in the electrical reactions, and with loss of reflexes in case these symptoms are due to organic disease, and if he remembers, furthermore, that spastic forms of paralysis are associated with increased reflexes, with normal electrical reactions, and with normal sensations, he will have little or no difficulty in arriving at a correct diagnosis "

With reference to the etiological relation of rheumatism to chorea, the author expresses himself very conservatively and thinks its importance is gen-

erally overestimated. We endorse the sentiments in the following paragraph, and think there is but slight variance of opinion among neurologists on this subject. 'There has been much talk about reflex chorea, as about the reflex origin of many other neuroses but he who sees with only half an eye will soon convince himself that these reflex theories are but a poor makeshift. Of all the cases of chorea that I have seen I have found but very few that I could consider due to any peripheral exciting cause. I have convinced myself that in a few cases the presence of intestinal parasites was the cause of a transitory chorea which disappeared as soon as the parasites were removed but I am not convinced that nasal or ocular trouble of which so much has been made of late, ever leads to true chorea. If these troubles prove an inconvenience to the child some choreiform habits may for a long time be established, but in such cases the cardinal symptoms of St. Vitus's dance are wanting.' He very properly looks askance at all theories as to the pathology of the disease saying "the accurate pathology and morbid anatomy of chorea are still unknown."

The author states that mental disturbance is of infrequent occurrence in chorea. This is true as regards the psychoses but as regards the slighter troubles change in disposition, increased irritability, sensitiveness and the like, the statement is certainly incorrect. The slighter changes occur in a majority of the cases and are occasionally even of diagnostic significance when the movements are very slight.

We are heartily in accord with the author in his insistence on rest in the treatment of chorea. He says Milk and rest will do more for most cases of chorea than any other two measures. He is rather skeptical as to the efficacy of arsenic, and says 'I have yet to see the first case of chorea that got well more quickly with arsenic than without it as long as it was getting the benefit of rest.' We cannot think that this agrees with the experience of all good observers, and the author himself states that Seguin places arsenic first and rest second in the treatment of hysteria. The author's opinion on this question may be explained by his custom of never giving above twelve drops of Fowler's solution three times daily. We are entirely in harmony with Seguin and others in being convinced that large doses, fifteen to twenty five drops t. i. d. are often of great use when small doses are absolutely without effect.

The articles on Habit Chorea Chorea Electra and *Maladie des Tics Convulsifs*, are timely and merit careful reading. The author, however, has failed to note or to see the manifestly close relationship between the first and last of these affections.

The following sentence will show the author's position toward a much discussed question. "Serious errors of refraction may be the cause of headaches, and of continuous headaches even though no effort be made to use the eyes but I have seen headaches persist so frequently after the fitting of glasses by the most competent oculists that I am firmly convinced that eye strain is the sole cause of headaches in relatively few instances."

The article on Migraine is to be commended especially to the general reader as the affection frequently begins in childhood or at puberty and practitioners often—we had almost said usually—fail to recognize the nature of the trouble, and hence miss the rational treatment.

The chapter on Disorders of Sleep partakes of the general excellence of the work. Of especial and practical value are the hints as to training and the general treatment of insomnia. In the treatment of enuresis mention is not made

of elevation of the foot of the bed, a simple and sometimes of itself effective manœuvre, and one that is easily combined with any other treatment. Neither is *Rhus aromatica* mentioned. It is occasionally of signal service.

Chapter XI deals with Exophthalmic Goitre, Thyroid Enlargement at the time of puberty, Myxedema, Angio-neurotic Edema, Raynaud's Disease, and Facial Hemiatrophy, and the essential facts concerning each are succinctly stated.

Chapter XII, on Diseases of the Peripheral Nerves, might almost have been omitted, as it contains very little that may not be found in any good text-book, but the next one, on Multiple Neuritis, is excellent and timely, as many physicians are still unfamiliar with the affection, and it is seldom thought of as affecting children. Particular attention is called to the clear statement regarding malarial neuritis, although the affection is rare. It is to be remembered that "now and then cases come under one's notice of severe forms of polyneuritis in which the true cause cannot be ascertained." The reviewer has known good physicians to hesitate to make a diagnosis of multiple neuritis because no adequate cause could be found.

The author's statement that diphtheritic paralysis is relatively more frequent in the adult, is in harmony with the generally accepted views of most writers, but the recent statistics of Goodall¹, based on 1071 cases of diphtheria with 125 cases of consequent paralysis, show the contrary to be the fact. The same may be said regarding the current belief that paralysis is as apt to follow mild as severe diphtheria. It is but just to add that the article of Goodall appeared subsequent to the completion of Dr Sachs's book, and that the above is in no wise offered as a criticism.

In the chapter on Anemia and Hyperemia of the Spinal Cord the author says that "there is a reasonable doubt as to the existence of a distinct form of disease due to an anemic or hyperemic condition of the brain, and there is still more doubt as to the existence of any decided clinical condition due to the varying blood-supply of the spinal cord."

The chapter on Infantile Spinal Paralysis, acute anterior poliomyelitis, is a model of its kind and leaves nothing to be desired. Every page, we would almost say every paragraph, is pregnant with well digested knowledge. The same may be said of the chapter devoted to Cerebral Syphilis, more especially of the parts relating to diagnosis and treatment. It cannot be too frequently or positively emphasized that the treatment of nervous syphilis must be prompt and vigorous and include both mercury and iodides.

The chapter on Pott's Paralysis shows results of the same thoughtful consideration of an ample material which is evidenced throughout the book, but in treating of the pathology (in which must be grounded the principles of treatment) the author scarcely makes sufficiently clear two important points: first, that the paraplegia in the great majority of cases is due to pressure not from bone, but from inflammatory products, and second, that the changes in the cord are a general disintegration, stasis and edema, and not an active inflammation, tubercular or otherwise. We heartily concur with him in his opinion that the wisdom of active surgical interference may still be doubted.

Dr Sachs is known to have taken a particular interest in hereditary or family diseases of the spinal cord, and he is evidently master of the subject. The facts, including the latest literature, are reviewed in quite a judicial way,

¹ *Brian*, 1895, p. 282.

and we know of no work that contains a concise explanation of the subject so satisfactory as this one. In the bibliography of progressive muscular atrophy he makes no reference to the contributions of Hoffmann to the subject of the neurotic or neural form although they are, perhaps, the most important in the literature. In this connection, too some mention should have been made of the progressive hypertrophic neuritis of Dejerine. It occasions muscular atrophy and is of the family type.

The chapters on the Anatomy, Physiology and Pathology of Brain and Spinal Cord contain all the facts essential to a work of this kind stated with singular clearness and admirably condensed. The former contains an excellent exposition of the blood supply of the brain, but in writing of Geigel's most suggestive work on cerebral circulation the author sacrifices lucidity to brevity principally by failing to make distinct the difference between vascular tension and arterial pressure. It also includes a remarkably good presentation of what is known regarding aphasia.

In connection with the diagnosis of meningitis, no mention is made of spinal puncture as employed by Quincke, Lichtheim, Fürbringer and others and which has been shown to be of distinct value.

In his very clear and up-to-date description of acute encephalitis it is to be regretted that the author has overlooked the important contribution of Oppenheim, who has shown that acute focal non suppurative encephalitis is far from rare, and furthermore, that although the symptoms may indicate an exceedingly grave affection the prognosis is not correspondingly sinister.

The subject of infantile cerebral palsies is one that Dr Sachs has made peculiarly his own and the chapter devoted to it contains the results of an exceptionally wide experience and thoughtful observation.

Under the head of Tumors of the Brain the positive statement is made that mercury and iodide of potassium sometimes cause improvement in cases of growths other than gummata. The moral is obvious these drugs are to be tried for such other neoplasms and if improvement follows the use of active anti-syphilitic treatment we are not necessarily to conclude that the tumor is a gumma.

The palliative operation advocated by Horsley, trephining without any attempt to remove the growth, is not even spoken of although it is to be warmly recommended in selected cases. There is no doubt that it may arrest the most troublesome symptoms—the headache, vomiting and amblyopia due to choked disk. Impaired vision indeed may return to the normal.

The short article on Porencephaly will probably be welcome to many practitioners who have seen the condition referred to in connection with cerebral palsies, idiocy, epilepsy etc. but have no very clear idea as to the significance of the term itself, or the clinical significance of the brain defect.

In connection with cases which the author proposes to group under the heading 'Congenital Nuclear Palsy' it seems to us a short description should have been given of a form of congenital ptosis with associated movement of the lid, that has been known for some time and was quite recently well described by Bernhardt with the report of a case and full literature. In such cases the patient is unable to open the eye but the lid rises whenever the mouth is opened.

The short appendix, *A Few Therapeutic Suggestions* is the worthy ending of a worthy book. The suggestions are short, practical and based not on theory but on the rich experience of an observer, student, and thinker.

HUGH T. PATRICK

THE PULSE-SENSATIONS A Study in Tactile Sphygmology By Wm Ewart,
M D , F R C P Lond New York William Wood & Co 1895

The appearance of a work of 480 pages devoted to a study of pulse-sensations is a sufficient innovation in English medical literature to call for special comment. We cannot do better than to reproduce here the author's preface, which sets forth at some length the scope of the work, and his reasons for publishing it at this time.

"The contrast between the mechanical accuracy and elaborate detail of the sphygmogram, and the vague and inconclusive character of the pulse-impressions hitherto gained by palpation, is sufficient to explain, though it hardly justifies, the relative neglect of a valuable clinical method. Instead of being made to share in the general advance, palpation of the pulse has been almost ignored in modern investigations. Indeed, this obvious disproportion in the amount of attention bestowed on the instrumental to the exclusion of the digital method, was the sign which told of something left undone, and which pointed to the tactile pulse phenomena as to a mine to be explored.

"It might seem almost superfluous to dwell upon the essentially clinical nature of this investigation. Every digital examination of the pulse is, in its procedure, clinical. But this character belongs in a more special sense to the present inquiry, since its original idea and its ultimate object have been to widen the clinical scope of pulse-observations, by rendering the tactile pulse available for the more accurate study of disease. It is necessary, however, to explain why the results which are to be submitted should comprise only those which may be claimed as part of the sphere of physiology.

"In the endeavor to bring the tactile method 'up to date,' and to compare and if possible harmonize its indications with the sphygmographic data, in connection with the various morbid pulses, the normal tactile pulse called for the first and at the same time for the most searching scrutiny. A large proportion of these pages had thus to be devoted to a study of the latest advances made in instrumental sphygmology and of the works of Marey, Fick, Von Kries, Von Frey, Roy and Adam, Ozanam, and others.

"As to the author's special observations and practical results, for which his responsibility is undivided, they are put forward as containing the germ of a practical method which, by reason of its simplicity, should develop into one of general clinical utility. Even the practitioner of medicine, debarred from using the sphygmograph, might, with its help, not only add greater value and interest to his every-day pulse-observations, but gain ready access to fresh avenues of research. Crude and unfinished as the method still remains at this stage, to have longer withheld it from so many hands capable of improving it and of working out its clinical applications, until some adequate show of results had slowly accrued from the author's unassisted labor, would have served rather the literary credit of his performance than the best interests of clinical medicine.

"Even should these hopes of clinical usefulness prove delusive, some good service may yet have been done by the comparative study, undertaken in Part IV, of the work and theories of eminent authorities. To each of them, and to their publishers, grateful acknowledgment is due for the ample references which they have sanctioned, but towards Professor von Kries and Professor von Frey the obligation incurred is specially great.

"In the arrangement of these pages the chief care has been to provide

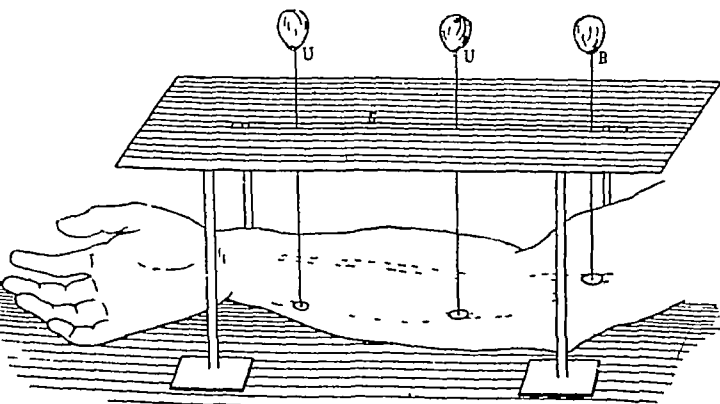
facilities for the reader even at the expense of some repetition and to multiply headings and diagrams for the better elucidation of new facts and ideas. The concluding summary of the results obtained may be of service to those lacking time for a study of the theory of the pulse whilst it places in a clear light the distinction between mere inferences and facts.

The first part of the work is taken up with a consideration of what was known of the pulse prior to the invention of the sphygmograph. While the writer admits the great value of this instrument, he points out some of its limitations and the fact that certain things are omitted in its tracing which can be readily appreciated by the trained finger. He says that at best the tracing is but a caricature of the pulse wave inasmuch as the latter which is some thirty feet in length, is represented in the trace by a fraction of an inch while the height is magnified fifty times. He claims that the best results will be achieved by an intelligent and systematic application of both methods.

The author does not agree with Broadbent that the pulse is a mere return to a cylindrical shape after the artery has been flattened by the finger. He thinks there is an active expansion of the artery, though he admits that in conditions of atheroma and calcification of the arterial coat the contention of Broadbent holds good. The remaining portions of Part One contain a consideration of the arterial channel and arterial tension.

Part Two deals with the tactile methods of exploration of the pulse. The anatomical relations of the radial artery are given, and the author recommends that the pulse be palpated with a single finger. The advantages of the thumb are explained but it is found to fail in the work of fine analysis.

Part Three deals with the rudiments of tactile analysis of the pulse. Here we must refer readers to the original. It will surprise many to find that their knowledge of the pulse and the information it imparts is either erroneous or rudimentary. One conclusion of the writer is strikingly at variance with the accepted views—namely that the ictus or pulsation in the distal portion of the



Demonstration of the priority of the ictus at the periphery in a subject whose ulnar artery took a superficial course

artery precedes that higher up This he has verified by repeated observations, not only with the finger but by ocular demonstration An individual recently came under observation in whom the ulnar artery took a superficial course The demonstration was made by a simple contrivance, easily understood by reference to the accompanying cut, which is reproduced from the work With the instrument in position, the stylet U was found to move slightly before B, at each beat of the heart The interval was of course only momentary, but it was easily appreciated

BORDERLAND STUDIES Being Miscellaneous Addresses and Essays pertaining to Medicine and the Medical Profession and their Relations to General Science and Thought By George M Gould, A.M., M.D. Philadelphia P Blakiston, Son & Co 1896

Those who admire—and in this country they are legion—the literary talent, and above all the vigorous style and earnestness of purpose, which animate the pen of Dr Gould, will be gratified at this collection, which consists of twenty-four essays and addresses and a number of editorial articles from the *Medical News*

The following are the titles Vivisection, Concerning Medical Language, The Rôle of the Maternal Instinct in Organic Evolution, Life and its Physical Basis, Is Medicine a Science? The Duty of the Community to Medical Science, Charity Organization and Medicine, Hospitalism, The Etiology, Diagnosis and Treatment of the Prevalent Epidemic of Quackery, The Untrustworthiness of the Lay Press in Medical Matters, The Disorganization of Medical Science, Concerning Specialism, Medicine and City Noises, Medical Aspects of Life Insurance, Foot-ball, Muscular Development and Use the Conditions of Health, Everybody's Medical Duty, The Power of Will in Disease, The Apotheosis of Hysteria and Whimsicality, Character, The Modern Frankenstein, Dreams, Sleep, and Consciousness, Human Life under Denied Sensation, Immortality

TRANSACTIONS OF THE CHICAGO PATHOLOGICAL SOCIETY Vol I October, 1894, to November, 1895 American Medical Association Press, Chicago

This small volume of 280 pages reflects the growing progress of scientific medicine in this old-new Society The Pathological Society is the outgrowth of the West Chicago Medical Society, which was founded in 1878, because of the migration of the Chicago Medical Society to the central part of the city, from the west side, where its meetings had been held ever since the great fire of 1871 In 1881, at the suggestion of Prof H M Lyman, the name was changed to The Chicago Pathological Society, as more expressive of the special aims of the body It was not, however, until the present place of meeting was secured that much could be accomplished in confining its work to subjects having a distinct pathological interest

Since 1894 the meetings of the Society have been held in the laboratory building of Rush Medical College, where special facilities are at hand for the exhibition of specimens and the use of microscopes Since its organization the Society has had a total membership of 231, of whom 157 are still members

It is not necessary here to go into an extended review of these transactions, as they have all appeared from time to time in the *Journal of the American Medical Association* During the year covered by this volume, ten meetings have been held, and it is surprising that so much has been accomplished in such a brief space of time

TYPHOID FEVER AND ITS ABORTIVE TREATMENT By John Elliot Woodbridge Cleveland, L. Leavengood & Company 1896

In reviewing Dr Woodbridge's book it might be well to announce that the writer of these lines is firm in the belief that the so-called Woodbridge treatment is a remedy for typhoid fever. He uses the word "remedy" in the same sense in which quinine is a remedy for malaria, or morphine for pain. He does not think that every case of malaria is instantly relieved by quinine, but nevertheless quinine is an accepted treatment. He thinks that the carbonate of gualacol is the most efficient ingredient in the formulas of Dr Woodbridge, that it does not act as an intestinal antiseptic as Dr Woodbridge claims, but that it favorably influences the course of the disease, ameliorating many of its severer symptoms and shortening its duration. He is further of the opinion that the Woodbridge formulas contain ingredients that are useful adjuvants, particularly the calomel, and that while in many cases the formulas might be modified advantageously they are probably as serviceable in the majority of cases as any fixed formulas could be. We think it desirable at the outset to make this statement as it is a partial acknowledgment of the chief contention of Dr Woodbridge's book.

The author in his introduction announces a confession of faith as follows: "I believe that in every uncomplicated case of typhoid fever the disease can be aborted if proper antiseptic treatment be instituted at a sufficiently early stage of the malady. I have never taught that the disease can *always* be aborted when the treatment has been too long deferred, but I have taught that uncomplicated typhoid fever should never cause a death. I have never, even by implication, given any one the right to assert that I do not recognize the possibility of death from intercurrent disease during an attack of typhoid fever even though it may have been properly treated from its inception. While I have thus far been able to abort the disease in every instance in which treatment was instituted on or before the eighth day and in a large percentage of cases in which it was commenced on or before the tenth day of sickness as well as in a few cases taken at a much later period, I have never taught that the disease can always be aborted when treatment has been so long postponed."

The description of typhoid fever opens with some short definitions, an account of the various synonyms and a short history of the disease. It is evident that the author has made little or no attempt to give us a treatise on typhoid but has aimed almost wholly at exploiting his treatment. The exciting cause of typhoid fever is found in the invasion of the body by the noxa of the disease presumably a microbic poison the bacillus *typhosus* a water borne virus. He finds the pathological lesions in this disease so common that he thinks the zygous origin of the disease is proven. Exactly what is intended in the foregoing sentence the reviewer is unable to determine.

The body of the work, over two hundred pages is made up of the already published papers of Dr Woodbridge which have been read during the past few years before various medical societies. Throughout all there is an acrimonious controversial spirit which it was unwise to embalm in the pages of a monograph. Nearly one-third of this portion of the work is made up of general and personal attacks, which, granting that the circumstances of the time justified them, there can surely be no excuse for perpetuating. We cannot but think as we run through these pages, that the author rather enjoys his martyrdom. Certainly whatever of intemperance of language may have been leveled at him

he has usually returned the same with interest. In a measure the writer recognizes this when he says that the attacks to which he has been subjected have served to rouse a certain *latent* pugnacity in his disposition.

The work closes with chapters on Diagnosis, Prophylaxis, and Treatment. It is to be regretted that one has to wade through nearly two hundred pages of matter, much of it irrelevant, in order to form an approximate idea of the success of the treatment advocated. A chapter giving results and a few tables would at once have placed this information at our disposal. The section dealing with treatment gives us the well known formulas, and directions. There is nothing in these calling for special comment.

Aside from the defects referred to, the writer is not always clear in diction, and he inclines to the use of unusual words which further obscure his meaning. He refers to some criticisms that have been passed on his work as follows: "So many wild and unfounded rumors have been circulated concerning my theories on the subject of intestinal and general antiseptics, as to require that in justice to myself I ought to define my position in unmistakable language, that may forestall the future tirades and *sibilations* of those who would castigate and anathematize, but more especially that my *paraphrasts* and commentators may not misunderstand and misjudge, and that my *oneirocritics* may interpret my dreams of that time to come when each human being shall have become the beneficiary of this little book, with such acumen and discernment that both physician and invalid will be assured of the truthful maxims it bears on the white pages between its pasteboard covers." (Italics ours.)

While we have made some criticisms on this book as a literary and scientific production, we close our review with a free acknowledgment of the persistent energy and evident honesty of purpose that have animated Dr. Woodbridge.

PROGRESS OF MEDICAL SCIENCE

MEDICINE

UNDER THE CHARGE OF JAMES B. HERRICK, A.B. M.D.

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Relation of Nuclein Administration to Leucocytosis —

Von Mayer (*Deutsche Med Woch*, March 19, 1896), in the clinic of Professor von Jaksch, has made some interesting studies on the relation of nuclein to leucocytosis

The observations were made on subjects in good general health, who presented no anomalies of nutrition, the diet being uniform and carefully weighed. The author thinks that the normal range in the number of leucocytes is so marked that no significance is to be attached to differences of a few hundred. He was able to produce a distinct leucocytosis by administering daily four of Horbaczewski's pastilles each containing one half gramme of nuclein.

He found that nuclein administration exerted no influence over uric acid excretion.

In a second experiment with pure nuclein he sought to ascertain whether it would be as completely absorbed as Weintraud had shown to be the case with nuclein bearing thymus substance, the secretion of phosphoric acid increasing appreciably under the action of the thymus. For this purpose the urine for twenty four hours was estimated for total nitrogen by Kjeldahl's method, for uric acid by Hopkins's method, and for total phosphoric acid by titration with uranium solution. The nitrogen content of the food, which was mixed, was estimated as accurately as possible by repeated analyses. The patient was 28 years of age. The result is shown in the following table.

Date	Phosphoric acid.	No. of leucocytes per cubic centimeter
1895.		
Normal days		
June 29-30	1.91	
June 30-July 1	2.67	
July 1-2	2.93	June 30 7400.
Nuclein days:		
July 2-3	3.10	
July 3-4	3.31	
July 4-5	3.23	July 3 10,300
Normal days		
July 5-6	2.6	
July 6-7	3.2	
July 7-8	2.9	July 7 7910

The absorption of the nuclein is confirmed by the increase of the secretion of phosphoric acid on the nuclein days. The slight increase accords entirely with the small quantity of nuclein, for in this experiment too only two grammes of nuclein were administered.

The following table gives the results obtained in a case in which pure nuclein was administered. It shows a marked increase in the number of leucocytes.

Date	No. of leucocytes per cubic centimeter
1895	
Normal days	
June 15-16 }	
June 16-17 }	June 15 8600
June 17-18 }	
Nuclein days	
June 18-19 }	
June 19-20 }	June 20 13,500
June 20-21 }	
Normal days	
June 21-22 }	
June 22-23 }	June 23 9800
June 23-24 }	

Two similar observations were made with thyreoidin and one with thymus administration, but no increase in leucocytosis was noted.

Gangrene Following Measles —

G. E. Lochner (*Albany Medical Annals*, April 4, 1896) reports two cases. He remarks that when an epidemic of measles spreads over a city and when it invades the asylums where the city's orphans are huddled together, deprived of sufficient sunlight and fresh air, and many of them the offspring of tubercular, syphilitic, and generally depraved parents, then it is we see this disease in all its virulence and with its rarest complications and sequelæ.

During August this disease spread among the inmates of the St. Francis de Sales Asylum, and there were developed two cases of noma, or gangrene of the mouth and vulva.

The first case, attended by Dr. Macfarlane, was an illegitimate child of three years, who had been in the asylum a year. She was always delicate and puny, with a suspected tubercular diathesis. In August she was taken with a slight attack of measles with marked eruption, but no severe general symptoms. Her mouth became sore about September 1, and two weeks later became gangrenous. She died on the 21st of September.

The second case was a girl, aged two years and four months,

who had been attended the preceding winter for broncho pneumonia Her father was a periodical drinker, mother of delicate constitution and of late a victim of phthisis pulmonalis The little girl entered the asylum in August, 1895, was taken ill with measles about September 1, complicated later by broncho-pneumonia As several of the inmates had died of this disease, her friends had her taken home and she came under Dr Lochner's care in an exceedingly weak and emaciated condition pulse 150, respiration 45 to 50, temperature 102 5°, chest filled with râles She was stupid and disinclined to take nourishment A portion of the scalp about the size of a ten-cent piece was missing, having evidently sloughed out, probably the result of a gangrenous process Strongly stimulating treatment was ordered, and concentrated nourishment The next day her condition was weaker and she had taken but very little nourishment On entering the room, the Doctor noticed a very offensive odor, and upon inquiry the nurse informed him she had noticed a dark spot on the child's vulva the preceding afternoon, which was very offensive. Upon examination, the right side of the vulva was found swollen and covered with a dark gangrenous spot, the size of a half dollar, involving the right labia majora and minora, the clitoris, and the vagina in the region of the meatus urinarius Death occurred the following day, about seventy two hours after leaving the asylum

Endocarditis in Children —

Pott (*Fortschritte der Medizin*, Nos 22 and 23, 1895) gives the result of his observation of ninety five cases of cardiac disease that he met with among a very large number of children in private and dispensary practice. It is interesting to note that in no single case does he recognize an idiopathic or primary endocarditis, in all cases he obtained a clear history of acute articular rheumatism or of scarlet fever, or of previous tonsillitis or pharyngitis with swollen cervical glands enlarged spleen, and pains This tonsillitis he believed was of true rheumatic character, and should be regarded as the primary disease He thinks that by careful attention in cases of apparently primary endocarditis, these varieties of masked rheumatism can be discovered

As regards fetal endocarditis, he has never found the mitral valve diseased In one case the aortic valves alone were affected He believes, with most writers that congenital malformations in the fetal heart are mainly, or solely, due to defective development of the cardiac septa Many interesting cases of these malformations are recorded

Primary Cancer of the Liver —

Martin and Hamilton (*Monthly Medical Journal*, April, 1896) report a case of cancer of the liver with secondary cancer of the stomach, periportal glands, pancreas, and vena cava. The description and illustration show that the mass occupied nearly the entire right lobe of the liver. At no place was it covered by more than two centimeters of liver tissue.

While admitting a possible error in regarding the tumor as primary in the liver, the writers argue, and it would appear correctly, that the enormous size of the hepatic neoplasm, its dense consistence, its richness in "fibrillated masses out of all proportion to the insignificant amount of cellular growth," mark it as a tumor of long duration. The growth in the stomach, however, was small, circumscribed, and with little fibrous stroma, and corresponded to the description given by Grawitz of secondary metastatic cancer of the stomach.

The rarity of primary cancer of the liver makes the case worthy of record.

PATHOLOGY

UNDER THE CHARGE OF ARTHUR R. EDWARDS A. M., M. D.,

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and Wesley Hospitals.

A New Human Tapeworm —

Henry B. Ward reports in the *Western Medical Review* (June 15, 1896) that a tapeworm was sent to him more than a year ago which at first sight appeared unlike either *tænia saginata* or *tænia solium*. It showed the slender form and more delicate appearance of the latter, but was in length of segments larger than the former species.

Thus far only two specimens of this species have been seen, and both were taken from residents of Lincoln. One of them has been almost entirely destroyed in making slides and sections, but the other is still nearly entire, and from it were taken the general measurements which are given in the following. The total length of this specimen must have been about five meters. The terminal proglottids, just ready to be separated, are from 3.5 to 5 millimeters in width. They are, as represented in Fig. 1, of nearly uniform breadth throughout their entire length, save that close to the end a prominent widening is found, to which the subsequent proglottid is attached. The sexual spore is easily seen, though it does not

project markedly beyond the margin of the segment. One meter anterior to the end of the specimen the proglottids measure 15 millimeters long and 7.5 millimeters wide, and a meter further anterior they are just about 9 millimeters square. In the anterior third of the worm the segments are 4.5 millimeters long by 3.5 millimeters wide, and near the anterior end 1 to 1.2 millimeters long by 0.8 to 1 millimeter wide. In general, then, it may be said to be much slen-



FIG. 1.—Two segments from end of chain *Taenia confusa* n. sp.
Natural size

derer than *taenia saginata*, never attaining the broad form which is so striking near the middle of the chain in specimens of this latter species. Cross sections show that the new form is much less muscular, and in fact more like *taenia solium*, from which it differs, however, in many evident respects. A positive diagnosis of the species may be made from these terminal segments alone, by the size and shape, which are sufficiently unlike corresponding parts in the two familiar forms of *taenia* to be distinguished without great difficulty.

The most striking peculiarity of the new species, however, is the head. Unfortunately, this was present only in one specimen. The long, very slender neck has no region which fails to show the boundary lines of the proglottids. It is crowned by a small head

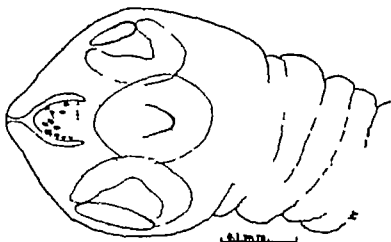


FIG. 2.—Head of *Taenia confusa* n. sp. Highly magnified \times about 125.
Drawn with Abbe camera. Leltz Oc. 2, Obj. 5.

(Fig. 2), which measures only 0.3 millimeter in diameter. The four suckers are distinct but not prominent, and produce no apparent break in the outline of the head. Most striking, however, even

under a low power, is the rostellum, which lies drawn into a pit at the anterior apex of the head. It is thimble-shaped and measures 0.05 by 0.07 millimeter, it is covered by six or seven close rows of minute hooks, which decrease in size from the apex of the structure toward the base. Owing to the thickness of the muscular mass about the hooks, and their diminutive size, it was not possible in the single specimen to determine exactly their size and shape. One recognizes, however, without difficulty, the clear, highly refractive appearance characteristic of such chitinous structures. The diminutive size of the head led at first to a suspicion that it was altogether lacking in this specimen. It is probable that the rostellum, with its mass of hooks, gives a firm hold on the intestinal wall of the host, and the parasite may be evacuated only with great difficulty. Accurate diagnoses and records of methods employed in removing the worm are necessary to determine the effect of the ordinary remedies on this new species. It is by no means certain that it will yield to the same treatment as the well known species.

A table of measurements for the three species of tænia which are found as adults in the human alimentary canal is appended for convenience in diagnosis. The measurements for the familiar species are taken from Leuckart. The specific name *confusa* is proposed for this new form.

	T. <i>confusa</i>	T. <i>saginata</i>	T. <i>solium</i>
Length of entire specimen	5 m	4-8 m	2-3 m
Length of terminal proglottids	27-35 mm	18-20 mm	10-12 mm
Width of terminal proglottids	3.5-5 mm		
Greatest width of chain	8-9 mm	12-13 mm	7-8 mm
Diameter of head	0.3 mm	1.5-2 mm	1 mm
Diameter of suckers	0.12-0.15 mm		-

BACTERIOLOGY

UNDER THE CHARGE OF GEORGE H. WEAVER, M.D.,
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Concerning the Specific Immunity Reaction of the Typhoid Bacillus —

Prof. R. Pfeiffer and W. Kolle (*Ztschr. für Hygiene und Infek.*, bd. xx1, heft 2) state that since the discovery of the typhoid bacillus by Koch and Eberth, followed by the researches of Gaffy, numerous bacteriologists have studied this organism with a view of finding reliable methods whereby it could be positively differentiated from organisms that resemble it. Loserer, who has critically studied the present method, concludes that none of the thus far

known supposed characteristics suffice for its absolute identification. Under such circumstances grave doubt cannot but exist as to the identity of cultures obtained from feces and water, or from material containing a mixture of bacteria, even though the organisms in question present the known biological characteristics of the typhoid bacillus.

After Pfeiffer had demonstrated in the blood of cholera convalescents, and in animals artificially rendered immune by the injection of living or attenuated bacteria, a specific germicide body, it was possible to establish an absolute differential diagnosis between the cholera germs and the vibrios that resemble them. From analogy it seemed probable that similar bodies existed in the blood of typhoid convalescents and of animals artificially made immune, which would render possible the positive identification of the Eberth bacillus.

Stem was the first to investigate the immunizing quality of the serum obtained from typhoid convalescent patients on animals artificially infected. He was able to produce, in the majority of cases, artificial immunity against the injections of the typhoid bacilli into the peritoneum, but since we possess no definite knowledge concerning the virulence of his cultures, and the dose injected, it is hard to judge of the value of his results.

It is impossible to produce experimentally an abdominal typhoid exactly similar to that which occurs in man. Nevertheless, under certain conditions, marked pathological changes are noted in the laboratory. The susceptibility of young guinea pigs, of about 300 grammes weight, is very great, and does not vary, thus quantitative accuracy in experimental work is rendered possible. The cultures used should be less than twenty hours old, and grown on agar agar, this nutrient medium being particularly adapted to the growth of the bacilli, as shown by their excessive motility. The dose, two milligrammes of the culture, was mixed with one cubic centimeter of sterile bouillon. Two or three hours after the injection, the animal evinced signs of weakness, dullness and listlessness. The body temperature, which rises shortly after the injection, falls to about 30°C . The changes that take place in the tissues are proportionate to the dose and virulence of the cultures used. With large doses of very virulent cultures, the exudate into the peritoneum is profuse, of a serous character, sometimes bloody, and in it enormous numbers of bacilli are demonstrable. The blood and the various organs also contain bacteria, showing general infection. The spleen is small and soft, and the intestines either pale or diffusely reddened.

Very different are the results when the minimum fatal dose employed. The exudate in such cases is fibrinous or purulent, and bacteria are seen in the pus-cells. The number of free bacteria small. The surface of the liver is bathed in pus, and the intestine are also the seat of a purulent exudation. The blood and the various organs contain no bacteria. With a smaller dose the animal recovers after showing more or less reaction. By gradually diminishing the amount injected, the smallest fatal dose of every culture can be determined. This enables us to measure the degree of virulence, and it follows that the smaller the dose is, the greater the virulence of the culture, and *vice versa*. Tests of a number of cultures show wide difference in virulence. Young cultures obtained from the spleen of persons who have succumbed to the disease are the most virulent, the minimum fatal dose being $\frac{1}{500}$ to $\frac{1}{100}$ oese. Notwithstanding all precautions, the typhoid bacillus, when grown for successive generations in the laboratory, loses some of its virulence, so that the smallest fatal dose of the average laboratory culture is about one-half oese. The lost virulence cannot be restored by passing the culture through animals.

The poisonous effect is produced by the absorption of the toxin. This constituent is not furnished as a specific secretion but as a product of the destruction of the bacteria when in contact with living tissue. In the guinea-pig there was no localization of bacteria in Peyer's patches and solitary follicles, or any infection of the lymphatic glands.

In investigating the typhoid serum, the "mixture method" was used. Several times the smallest fatal dose, amounting to almost one oese, was mixed with a definite amount of serum, and with sufficient bouillon to make one cubic centimeter. This was then injected into the peritoneal cavity of the guinea-pig.

To correctly estimate the protective influence of typhoid serum, control experiments with normal serum were performed. These resulted in the discovery that even normal serum exerts some protective influence. The amount necessary for this reaction varied from 0.3 to 0.8 Cc. The microscopic change that takes place in the capillaries is the rapid immobilization of the bacilli, whose number is also decreased. Where the animal recovered, this process continued until only a few swollen, immotile bacilli were left.

In contradistinction to normal blood-serum, which, as we have stated, exerts a protective influence only after several decigramms have been injected, the serum of typhoid convalescents produces a much more marked effect when injected in smaller doses—0.1 to

centigramme Again, the serum of different individuals varies as to its protective influence, but when different cultures of the same serum are employed, the amount necessary varies with the virulence of the culture. It is here that a marked difference is noted between typhoid serum and cholera serum a certain amount of the latter will counteract a definite amount of a cholera culture, regardless of the virulence

This specific property of typhoid serum is most marked during the first week of convalescence, even in mild cases the serum shows this change and can be used for diagnostic purposes It loses this property, however, quite rapidly

The microscopic picture differs very much where typhoid serum has been injected, instead of normal When two milligrammes of normal serum were injected, the bacilli remained very motile and multiplied rapidly On the other hand, with typhoid serum the bacteria almost immediately became motionless, fifteen or twenty minutes later, degenerative changes could be noted in the hanging drop Part of the bacillus becomes thinner, finer, and more transparent, and finally crumbles away, like crystals of sugar when placed in water When the dose is very large, the bacilli are seen to swell and then change into spherical bodies which are very transparent The time necessary for this reaction to take place is proportional to the dose and virulence of the culture used, varying from thirty minutes to two or three hours While this process was going on and after its completion, no bacteria could be demonstrated in the blood, the organs of the body, on the surface of the gut, or in the recesses of the peritoneum, showing that the bacteria are not carried away to other parts of the body It is true that numerous leucocytes are seen containing bacilli but while this phagocytosis destroys many, still by far the great majority meet their death in the free exudate by the process demonstrated

The question now arises Is this reaction due to preformed bactericidal bodies, or to an indirect action analogous to that of the cholera serum? If the former, it ought to take place outside of the body, but experiments show that under such circumstances the serum possesses only very slight germicidal properties We therefore believe that the living organism in some way converts a latent immunizing principle into an active one That this is a new formed product or body, and not merely an increase in the protective influence inherent in normal serum, is shown by the fact that the typhoid serum exerts no immunizing properties against injections of the colon bacilli or other closely related organisms This fact further

tends to disprove the theory that the colon and typhoid bacilli are identical. Typhoid serum exerts no protective influence against injections of the toxins of the typhoid bacilli—proving that no anti-toxins are produced with these bactericidal bodies.

Benner and Pfeiffer were the first to succeed in immunizing animals with increasing injections of living or sterile typhoid cultures. R. Pfeiffer, in experimenting with the cholera bacilli, found that the serum of animals artificially rendered immune by that process exerted a much more marked protective influence than the cholera serum obtained from convalescents. This fact suggested the probability that the serum of animals artificially immunized against typhoid fever might react in the same manner. In the writer's experiments, which extended over more than a year, goats were rendered immune by the subcutaneous injection of gradually increasing doses of typhoid bacilli, sterilized at a temperature of 65° C. The bacilli were obtained from a twenty-hour agar culture, and injected mixed with a quantity of sterile normal salt solution. As a result of the injection, there was a distinct rise in temperature, a loss of appetite, and a more or less circumscribed infiltration of the subcutaneous tissue at the point of injection, the animal also lost in weight. The next injection was delayed until the animal had regained its normal weight, and the infiltrate had been absorbed. After four months one of the goats was injected with a virulent culture of typhoid, without any effect. In experimenting with the serum, the "mixture method," already referred to, was employed. At the same time, control experiments with normal goat-serum were conducted.

The result of these experiments showed the development, in the blood, of a specific bactericide body similar to that which exists in the serum of typhoid convalescents. Not all of the serum showed the same degree of development of these bodies, the most concentrated exerted about ten times the protective influence that typhoid-convalescent serum does.

With this serum a large number of different typhoid cultures from various origins, as well as other closely resembling cultures, were tested, and at the same time control experiments with normal serum were instituted. The results show that if the dose of a given typhoid culture is sufficiently large, normal serum cannot in any quantities counteract it, while typhoid serum rapidly causes a disappearance of the bacilli. Again, those cultures whose biological and cultural characteristics show a marked divergence from the normal type of typhoid bacillus, such as rapid development of acid, alkali,

or coagulation of milk, are not counteracted by typhoid serum to any greater extent than by normal serum, even though they show no exceptional virulence. Further, this specific reaction was never absent with the normal type. In this way the identity of a given culture can be readily determined, and the authors have obtained cultures of true typhoid bacilli from normal feces and other localities which at the present time are hardly looked upon as sources of infection. Moreover, the fact that these bactericidal bodies are demonstrable in the serum of all typhoid convalescents proves beyond doubt the etiological rôle played by the typhoid bacillus.

Suppurative Nephritis —

V. Wunschheim (*Ztschr für Heilk*, bd xi, pp 287-401), from a study of cases of suppurative nephritis, concludes as follows:

1. Suppurative pyelonephritis is caused in the great majority of cases by the bacillus *coli communis*, and in a minority of cases by the proteus *vulgaris* or by the common pyogenic cocci. 2. In cases caused by the common pyogenic cocci, pyemia almost invariably supervenes. 3. The pyelonephritis caused by the staphylococci and streptococci differs not only in the subsequent pyemia, but also in a greater destruction of tissue and an absence of local proliferation. 4. It is not probable that typical ascending pyelonephritis can also become descending.

Ulcerative Endocarditis Caused by the Gonococcus—Gonorrheal Septicæmia —

Thayer and Blumer (*Bulletin of the Johns Hopkins Hospital*, April, 1896) give a résumé of the literature bearing upon the subject, and report a case in which bacteria corresponding in every way to the gonococcus were found in the vegetations on the mitral valves. The valvular lesions were typically those of acute ulcerative endocarditis. Cultures made during life from the blood which was removed by a sterile syringe from the median basilic vein gave a diplococcus identified as the gonococcus. The cultures were made by mixing a large quantity of blood with liquefied nutrient agar agar, by a method corresponding to that of Wertheim.

The Influence of Roentgen's Rays upon Bacteria —

Minck (*Munch Med Woch*, 1896, p 202) reports some observations bearing upon the influence of Roentgen's rays upon bacteria. Agar plates inoculated with typhoid fever bacilli, and then exposed to the action of the Roentgen rays for from two to eight

hours, showed no perceptible change in the growth when kept in the incubator. An injurious action of the X-rays seems to be excluded by these experiments, and the therapeutic effects which would be dependent upon such action are not to be expected.

THERAPEUTICS

UNDER THE CHARGE OF N. S. DAVIS, JR., A.M., M.D.

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Diuretic Action of Theobromine in Kidney and Heart Disease —

Dr. Huchard states (*Medical Week*, January, 1896) that for nearly two years he has employed theobromine as a diuretic in kidney and heart diseases, the effect of this drug being more pronounced than that of digitalis and caffeine. Prolonged use of theobromine is free from inconvenience, if the daily amount ingested be not above five grammes, and if this dose be divided into smaller ones of 50 centigrammes each. It may, however, even in small doses, determine a peculiar headache. He has rarely met with nausea and vomiting, and only exceptionally with symptoms of cerebral excitement. He has found only a single case of albuminuria attributable to theobromine, and three cases in which the administration of the drug was followed by increase in the amount of albumin before existing in the urine. In these three cases this increase coincided with rapid resolution of the edema.

He exhibits theobromine as follows: the first day 3 grammes, in six powders of 50 centigrammes each, the second day 4 grammes, in eight powders, and the third day 5 grammes, in ten powders, repeating this dose for three or four days. In certain cardiac affections, half a milligramme or more of digitalin is given during one day, in order to prolong the diuretic effect.

Huchard concludes that theobromine is one of the best and most reliable diuretics in anasarca due to renal or cardiac affections. It belongs to the group of direct diuretics, its action being exerted upon the renal epithelium, the functions of which it stimulates without determining any change in this epithelium. It is especially efficacious in arterial cardiopathy, heart disease complicated with renal lesions, asystole, and interstitial nephritis. The diuretic effects of theobromine are not enhanced by association with digitalin, caffeine, or lactose, but the administration of digitalin during one day after each dose of theobromine may prolong diuresis, which,

though making its appearance very rapidly, does not persist over four days after the last dose of theobromine. The effect of this drug is not accumulative, and it is not toxic. Apart from helmet-like headache, it only determines slight symptoms of digestive disturbance. It frequently produces the desired effect in cases in which digitalin and caffeine have failed. Lastly, it appears to be useful in infectious diseases in which urinary depuration plays an important part, such as typhoid fever and pneumonia.

Combined Bromides and Opium in Epilepsy —

The *New York Medical Times* (February, 1896), in commenting upon Flechsig's method, states that it consists in the continuous administration of opium, in the form of extract made into a pill. The dose is increased until the patient is taking the equivalent of fifteen grains of powdered opium daily, and is then held at this point for about six weeks, at which time the opium is abruptly suspended and bromides given in half-drachm doses three times daily. The dose of the bromides is then gradually decreased to two scruples each day. This plan has proved effective in chronic and intractable cases—not curing the disease, but materially lessening the frequency of the attacks and reducing their violence.

Dr Israel M. Davenport, of the Illinois Eastern Hospital for the Insane, reports to the October *American Journal of Insanity* the results of the treatment, by himself and colleagues, of forty-two cases, with the following conclusion: That while this treatment does not result in recovery, it is soothing to the irritable patient, exhilarating to those suffering under depression, and gives a gratifying respite from the attacks, thus adding materially to comfort. He has found no benefit in repeating the treatment oftener than at periods of three months after the bromides have been taken. In every case the attacks become less frequent and the patient less irritable.

Tizzoni's Antitoxin in Chronic Tetanus —

E. Eugene Tracey contributes to *The Lancet* (Feb. 1, 1896) an interesting case of a little girl of seven years whom he first saw on November 16, 1894. She had sustained two slight burns, one on the forehead and the other on the left leg, the scars of which were still visible. On November 14 it was noticed that she could not fully open the left eye and that she appeared to be smiling continually. The author found tonic spasm of the orbicular muscle of the left eye which was almost enough to bring the eyelids together,

well developed risus sardonicus, more marked on the left side of the face, rigidity of the muscles of the neck, back, legs, and abdomen, producing extension of the head, with moderate opisthotonos. The patient could separate her teeth for almost half an inch, could swallow small quantities of liquid, and speak indistinctly. The temperature was normal. He prescribed bromide of potassium (ten grains every four hours) and absolute rest and quiet. On November 17 the patient had a severe spasm in which the chest was fixed and the face black, the temperature rising to 99.8° . On the 18th another convulsion had occurred during the night, and one also occurred in the afternoon. The temperature was 99° . In the evening one-eighth of a grain of sulphate of morphine was administered hypodermically, as she refused to take medicine by the mouth. On the 19th she took very little nourishment. An attempt to pass a soft rubber tube by the nose for feeding purposes produced a convulsion, so it was abandoned, and one-fourth of a grain of morphine sulphate was administered hypodermically. On the 20th the patient had taken more nourishment during the night, but during the day she was not so well, having two severe convulsions. On the 21st, at 6 A.M., the author was summoned, as the patient had had two convulsions, and administered a quarter of a grain of sulphate of morphine. At 5 P.M. she had another convulsion, and at 8 P.M. yet another. He then administered the first dose of Professor Tizzoni's antitoxin (obtained from Messrs Allen & Hanburys), injecting $1\frac{1}{8}$ grammes under the skin on the inner side of the thigh. On the 22d, at 8 A.M., he found that the patient had had nine convulsions during the night, occurring at almost exact intervals of one hour. He injected a second and similar dose of antitoxin. The child was somewhat delirious after this injection, and continued to have fits all day at intervals of from five to ten minutes. The temperature was 100.8° and the pulse 116. He again injected one-eighth of a grain of sulphate of morphine, but administered no antitoxin. On the 23d, at 11 A.M., the pulse was 112 and the temperature 102.5° . No fits had occurred during the night, but frequent clonic spasms. At 5.30 P.M. the pulse was 80 and the temperature 100.5° . No recurrence of fits supervened. He injected five-sixteenths of a gramme of antitoxin. On the 24th the pulse was 68 and the temperature 98.6° . Frequent clonic spasms were occurring. He administered one-eighth of a grain of sulphate of morphine. At 8.30 P.M. he administered five-sixteenths of a gramme of antitoxin. On the 25th, at 10 A.M., the clonic spasms were of frequent occurrence, from 8 to 10 P.M. they recurred every quarter of an hour. He

injected the sulphate of morphine as before, and five sixteenths of a gramme of antitoxin. From the 26th to the 30th, the supply of antitoxin being exhausted, the treatment resolved itself into the daily injection of morphine and atropine, but the child made little or no progress. On December 1, having obtained another bottle of antitoxin, he recommenced the daily injections, administering five sixteenths of a gramme every evening for a period of seven days. Meanwhile the condition of the patient improved rapidly, the clonic spasms diminishing both in force and frequency and some relaxation of the tonic contractions of the muscles taking place, especially of those of the neck, jaws, and face. At the end of the week the improvement was so marked that he ceased to inject either antitoxin or sulphate of morphine. Recovery was completed without further incident, the rigidity of the muscles disappearing some days after she had ceased to be troubled with clonic contractions.

Apparently in this case the most noteworthy feature of the action of the antitoxin, beyond its general beneficial and curative effect, was the strong reaction the first large subcutaneous injection caused, the pulse and temperature of the patient rising and the fits being temporarily increased both in violence and frequency.

Ammonal in Malarial Paroxysm —

Cyrus Edson (*Denver Medical Times*, January, 1896) recommends this drug, in five- to fifteen grain doses, placed dry upon the tongue and washed down with a little hot whiskey and water. Careful and judicious treatment of the paroxysmal stage he regards as of great importance, as it gives comfort to the patient and materially aids subsequent treatment.

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN, A.M. M.D.

Professor of Clinical Gynecology in the College of Physicians and Surgeons, Chicago. Professor of Gynecology in the Post-Graduate Medical School, etc.

Cloaca in Women —

Dr. Frank J. Lutz, of St. Louis, has made some studies into the literature of this anomaly and incorporated them in a paper lately read before the St. Louis Obstetrical and Gynecological Society.

In a 22 year old single woman the vaginal and rectal outlets adjoined each other without intervention of a perineal body. Behind the rectal outlet was a circular depression around which the fibres of the sphincter ani could be distinctly felt. She had but moderate

control over solid feces The mucous membrane of the bowel was slightly everted

A crucial incision was made into the depression, and a pair of forceps and afterward the finger were passed through the ring thus made into the connective tissue behind the rectum The rectum was then separated from the posterior vaginal wall and from the surrounding tissues by a circular incision and freed from its pelvic attachment for a distance of three inches It was found that the freed end, or rather two inches of it, consisted of greatly hypertrophied circular muscle fibres which must have served the purposes of a sphincter The freed rectum was then drawn through the opening made through the depression, and attached to its margin by means of interrupted silkworm-gut sutures The perineal wound was united by buried catgut sutures, and the skin by silkworm

The rectum united along the greater part of its periphery to the anus Unfortunately, the perineal wound became infected, and a large gluteal abscess formed This was drained, and the patient made a good recovery She was seen October 20, 1895, and could then control her feces She is married and performs her marital duties perfectly

Dr W T Bull (*New York Medical Journal*, Sept 14, 1895) narrates the following almost identical case, the difference being only in the ages of the patients and in the method pursued to establish the proper relationship between the sphincter and the rectum The patient was born with an imperforate anus The rectum terminated just behind the vagina, the two being separated only by the mucous membrane At six months the rectal opening was enlarged Function was normal except under pressure of diarrhea At 14 years of age, when the patient applied for operation, the uterus and vagina were normal, the rectal opening was as described, there was a well marked sphincter in its proper place back of the rectal opening, with a dimpling of the skin in its centre

Dr Bull dissected the rectum free from all its surroundings for an inch and a half, made an incision directly backwards, splitting the perineum to the centre of the sphincter, transplanted the rectum to this, its normal position, stitched it to the skin, and closed the wound anteriorly with seven silver-wire stitches as one closes a lacerated perineal wound

Recovery in appearance and in function was prompt and perfect

Dr G S Sykes (*Medical Standard*, vol 1, p 85), of Galveston, reported the case of a female in whom coitus was performed,

impregnation resulted, and delivery was effected, through the anus. The woman had borne three children, all well developed, but all dead from protracted labor. The parts within the vulva were virgin, the clitoris normally developed and situated, the vestibula and the posterior commissure were not distorted by childbirth. The urethra was in its proper place. The nymphæ and labia majora were virgin in symmetry of outline. Two fingers introduced into the rectum passed upward along the anterior rectal wall about two inches where it was found the surface gradually sloped forward and upward and merged into the anterior vaginal wall, which at this point had normal anatomical relations. From half an inch to an inch below the os uteri could be distinctly felt the free edge of a membranous curtain which represented the upper third of the recto-vaginal septum. There was nothing abnormal here in size, position, or uterine vaginal relations. Speculum examination fully confirmed digital exploration. The condition is congenital and clearly a partial retention of the cloacal condition found in the fetus and the lowest mammalia, the monotremata. Similar cases are reported by Ogston, Siebald, Barbaut, and Morgagni.

The Therapeutics of Eclampsia —

While the pathology of this dread affection is yet in dispute, and no line of investigation which promises to throw light upon its nature and cause should be neglected, we can undoubtedly profit by a consideration of all claims of cures or methods of relief.

Dr J. T. McShane, of Indianapolis, in the *Indiana Medical Journal* (vol. 14, No. 7), makes a strong plea for the revival of venesection as a specific for puerperal eclampsia. After a perusal of his interesting article, and the list of hopeless cases restored to life and uninterrupted convalescence by the use of the lancet, the superficial observer might be led to think the moribund eclamptic no more difficult to handle than a case of common croup, however, it is not probable that quite so hopeful an impression is intended.

After reference to the great fatality which attended eclampsia in the seventeenth and eighteenth centuries, Ramsbotham says in his work on Obstetrics: "Few cases now terminate unfortunately, and the favorable results are to be attributed to the extent to which bleeding and other evacuant methods are carried."

Patients who are bled in this disease do not suffer from anemia on account of the depletion, but regain their normal strength and color, and as a rule, are out of bed as early as though nothing unusual had happened.

Prof Fordyce Barker insisted upon the unmistakable clinical evidence favorable to the employment of the lancet, and pleaded for its restoration in the management of puerperal eclampsia

Lusk says the claims of bleeding in eclampsia rest upon a substantial foundation, and that its special advantage lies in its prompt action

Speigelberg says "No means so quickly lessens arterial pressure, none so quickly restores their function to the kidneys, irritable from blood-pressure, and few act so readily upon the excited vasomotor nerves, causing relaxation "

Patients with eclampsia are never able to sit while the operation is made, consequently the depletion of blood must be greater than if the sitting posture could be assumed It is much better not to bleed at all than to bleed inefficiently While the loss of a small amount of blood will do no harm, it can do no good, and therefore it brings probably the very best life-saving remedy in eclampsia into disfavor and disrepute The life of the child in eclampsia parturientum is endangered by each succeeding attack, rarely persisting after the fourth or fifth convulsion In proportion to its relatively prompt action, the life of the child, and also that of the mother, are enhanced by venesection

In claiming for the lancet the credit of being a clean, safe, prompt, efficient, ever-at-hand remedy, the value of other remedies is not ignored

Chloroform, chloral and morphine lessen reflex irritability and paralyze cell energy, thereby aiding and holding convulsions in abeyance, while diaphoresis, purgation and venesection relieve arterial tension and eliminate the poison The high arterial pressure which is almost universally present in eclampsia has led many practitioners to believe that this disease does not occur in patients who do not bear depletion Morphine, chloral and chloroform have been used with excellent results in a large number of cases These agents may be used with advantage after depletion or in the early history of an attack After a patient has had a large number of convulsions and is in a state of coma, or near it, the administration of such drugs is not likely to prove beneficial Chloroform has been recommended and given in full anesthetic doses for the purpose of completely paralyzing the motor centres There is much danger from prolonged anesthesia carried to the surgical degree, and, added to the coma or the tendency to coma resulting from convulsions, it is capable of doing irreparable harm The same may be said of large doses of morphine and chloral Veratrum viride has been

successfully employed in some cases reported. In large doses it slows the pulse, and, as expressed by Hare, it "bleeds the patient into his own vessels" by filling up the mesenteric veins and thereby relieving arterial pressure.

PEDIATRICS

UNDER THE CHARGE OF W. S. CHRISTOPHER, M.D.

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Non-medicinal Treatment of Pneumonia in Children —

We reproduce here an editorial abstract of the *New York Medical Journal* dealing with six articles which appeared in the *Archives of Pediatrics* in April, 1896.

The first article, entitled "The Method of Treating Pneumonia at St. Mary's Free Hospital for Children, New York," by Dr. George Montague Swift, is a paper read at the March meeting of the New York Clinical Society. Dr. Swift says that cases in which the physical signs are those of bronchitis, but in which the children appear unusually sick and have a temperature ranging above 102.5° in the axilla or in the groin, are regarded as probably cases of broncho pneumonia and are treated accordingly. The plan in the treatment of these cases is to put the children in a room warmed to 75° F. or above, to keep a kettle of water boiling in the room, and on the kettle to keep a vessel of beechwood creosote or pine needle oil, care being taken that the creosote does not boil down and become too pungent. The combination of warmth, steam, and evaporating creosote makes a soft, agreeable atmosphere which is most soothing to the inflamed and irritated bronchial mucous membrane. A child which has been coughing violently and frequently, says Dr. Swift, when placed in such surroundings quiets down and coughs but rarely. One seldom needs cough syrups or expectorants in such an environment, he adds. The children with lobar pneumonia are kept in the well lighted, well ventilated wards of the hospital, some do better if they are removed to such a warm, moist atmosphere as was mentioned in connection with broncho pneumonia. The oil silk jacket is no longer used, but flaxseed poultices are applied for relief of pain. The use of an ice bag for the same purpose has not as yet become common, in the cases in which it has been employed the result has been satisfactory.

In the second article on "The Treatment of Pneumonia in the

Babies' Hospital, New York," Dr L Emmett Holt says that the pneumonia patients are kept in a ward by themselves with never less than 1000 and usually 1200 cubic feet of air allowed to each bed. The temperature of the ward is kept as nearly as possible at 70° F, and, in addition to as good ventilation as possible, the children are removed from the ward at least once a day to allow a thorough airing. Great attention is given to the feeding of these infants, as experience has shown that the worst thing to be feared is the slow failure of nutrition from disturbances of digestion, with vomiting or diarrhea, but sometimes occurring without either. The food is always considerably diluted, although the regular hours of feeding are maintained. Water is given freely between feedings, usually combined with stimulants. For the youngest infants, partly peptonized milk is the chief reliance. It has been found much easier to prevent disturbances of digestion by careful feeding at the outset than to control them when they have occurred. In connection with feeding, close attention is given to the bowels, particularly to avoid distention of the colon with gas, which is often found to produce attacks of cyanosis and sometimes even convulsions from the pressure upon the lungs. Wherever there is a disposition to much fermentation in the colon, the bowel is emptied once a day by irrigation. The general plan of treatment is to use as few drugs as possible, reserving the stomach for food and stimulants and relying upon external measures or applications to control special symptoms. Much reliance is placed upon counter-irritation and inhalations. Counter-irritation is made with a paste of one part of mustard and six parts of flour, which is made to encircle the chest. It is left on only long enough to redden the skin—*i e*, five or six minutes—and the application is repeated from three to eight times a day, according to circumstances. It has been found particularly useful where the bronchitis is prominent. Poultices have been practically discarded. Inhalations are used systematically in all cases, usually every three or four hours. For this purpose the child is placed in a closed tent into which steam is introduced from a croup kettle. The cases of lobar pneumonia are managed on much the same general plan, but counter-irritation is not used unless there is much pleurisy.

The third article, on "The Treatment of Pneumonia in the Children's Hospital, Philadelphia," is by Dr J P Crozer Griffith. He tells us that every patient with pneumonia receives a warm tub-bath at the outset, if the general condition permits of it. If not, he is sponged. He is then confined absolutely to bed. Circumstances

do not allow the pneumonic children with meningitis symptoms to be isolated, as would be desirable for the sake of mental rest, consequently all the cases, with occasional exceptions, are treated in the general wards. On the theory that croupous pneumonia, and probably broncho-pneumonia as well, is an infectious disease, no abortive or specific plan of treatment is attempted. Fever of moderate degree is not looked upon as of special import in pneumonia. Should it reach 104° or over, sponging with water of 70° or 80° is often employed, or a warm tub bath is given. If the temperature of the child is still higher, or the means used do not prove effectual, the temperature of the water is reduced, or a cool tub bath is given, but this is seldom necessary. Dr Griffith's own feeling is that the fever *per se* can generally be disregarded, and that it is rather the nervous symptoms which may accompany it that require treatment. Should great restlessness, insomnia, delirium or convulsive movements appear to depend on the existence of fever, he endeavors to reduce this, independently of its degree. He has found that when the respiration is becoming much embarrassed, the heart failing, and the general strength waning, as it is especially apt to do in broncho-pneumonia, a plunge for from one to three minutes into a bath of 103° to 105° will often rouse the failing powers in a remarkable manner. In the use of the cotton jacket the practice differs. His colleagues constantly employ it. He formerly did, but does so no longer. He has never been able to see that it did any good or rendered the child more comfortable, but appeared to make it less so. To employ it to prevent 'taking cold' seems to him irrational. For the same reason he says, we should swathe the entire body in cotton, for it is not the part exposed to chilling which suffers. Jacket poultices are only occasionally used by any of the staff, and by some not at all. When there is much dyspnea or pain, a hot light poultice sometimes gives great relief but Dr Griffith thinks that the indication for it seldom arises. Counter irritation is used occasionally, oftenest in the form of turpentine stupes to relieve pain. Dr Griffith is in the habit of employing friction with turpentine also, or, preferably, with amber oil in some cases of broncho-pneumonia, to relieve the attendant bronchitis, provided the rubbing does not exhaust the child.

In the fourth article, entitled 'The Treatment of Pneumonia in the Children's Hospital, Boston,' by Dr E. M. Buckingham, we learn that pneumonia patients are placed in the open ward with other patients, unless there is some special reason to the contrary. They therefore have a freer air than can always be secured in small

rooms Great care is taken to keep the air fresh and comfortably warmed, and in winter there is generally an open fire burning in the ward As a rule the medical wards, says the author, are somewhat quieter than the surgical wards, in which last there are less likely to be children who can be injured by noise Patients are supplied with warm but light clothing Dr Buckingham does not know that he ever saw a poultice used in the hospital, and that of the cotton-wool jacket is not at all common Perhaps of late years it has not been used at all Care is habitually taken that the child shall have food suited to its age and condition With a high temperature the food is probably always liquid, and is commonly milk, either clear or variously modified

In the fifth article, on "The Treatment of Pneumonia in the New York Foundling Hospital," by Dr W P Northrup, we learn that in broncho-pneumonia of moderate extent and not following measles, whooping-cough, diphtheria, or influenza, the treatment is mostly symptomatic For pain, localized, intermittent poulticing is employed The poultice is made of English mustard mixed with cold water, one part, stirred into boiled flaxseed, three or four parts. The poultice is made up thin and large enough to cover the whole back of the thorax or the whole front or the whole of either side, as may be desired This is kept on till the skin is well reddened The poultice is then slipped out and a hot dry flannel is slipped under the clothes (or padded vest) to replace it High temperature which manifests itself in cerebral symptoms—such as stupor, delirium, or great restlessness—not so much reliance being placed upon the thermometer as upon the symptoms, is to be relieved by baths Sponging with warm water and alcohol, followed by fanning, cools the skin well Immersion in water at 90° for from seven to fifteen minutes, with constant rubbing, is also employed In all cases attention is paid to keeping the feet warm In pleuro-pneumonia, counter-irritation is employed to clear up pleural dullness, iodine being applied to a point just short of blistering

The final article of the series, by Dr Samuel S Adams, is entitled "The Treatment of Pneumonia in the Children's Hospital, Washington, D C" In croupous pneumonia, he says, absolute rest in bed is enjoined and great discretion is exercised in disturbing the patient for physical examinations. Frequent examinations of the chest are avoided, thereby saving extra labor to the overworked heart If the pneumonic area is mapped out at first, and there is no reason to believe the inflammation has extended, nothing is to be gained by overzealous investigations, on the contrary, change of

posture for purposes of auscultation and percussion will frequently tax the patient's strength and may induce syncope. The diet is restricted to milk or animal broths in suitable quantities, and food is given every two hours during the day and every three hours at night. Cool water is also given at frequent intervals, but cracked ice is forbidden. The cotton jacket, with or without oiled silk, is worn throughout the attack. If there is acute pain with surface congestion, dry cups are applied over the inflamed area, followed by hot poultices and a jacket. The management of the fever depends very much upon its nervous manifestations. If the temperature does not exceed 104° , with a daily range of one or two degrees, and there are no evidences of cerebral irritation, no measures are taken to reduce it, but if it remains continuously high and is attended with delirium or coma, Dr. Adams depends upon frequent sponging with alcohol and tepid water, or the graduated cold bath. Neither he nor his colleague has used the cold pack or the ice poultice. In some cases, he says, the graduated bath alone keeps the temperature within safe limits, controls the delirium, and stimulates the heart. In broncho-pneumonia the general plan of treatment is much the same: most cases are so slight as to call for little more than rest in bed, a liquid diet, and the cotton jacket. If the inflammation extends to considerable areas, more active measures are pursued. Counter irritation is produced by mustard pastes, turpentine stupes or camphorated oil applied to the chest, but never to the extent of blistering. Hot flaxseed meal poultices are indicated when the pulmonary congestion is intense or general. In hypostatic pneumonia frequent changes of posture enter into the treatment.

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.

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Multiple Neuritis —

Sharkey, in opening a discussion before the British Medical Association (*British Medical Journal* Feb 22, 1896), very pertinently laid particular stress on the fact that in many of these cases there seems to be no excuse for calling the disease neuritis. In some instances the anatomical changes of inflammation are found, and in the processes of the disease the vascular phenomena are present which belong to inflammation in other parts of the body. To these cases the term "neuritis" should be restricted. In others,

and in our opinion they constitute the vast majority, the anatomical changes present are those of degeneration alone, and to these he would apply the term "peripheral nerve degeneration" In still another class of cases, generally rapidly fatal, as Landry's paralysis, no anatomical changes are found, and these he would call peripheral nerve intoxication

This conception of the disease was generally concurred in by those present, Saundby only dissenting While he did not deny that some cases were purely degenerative, he thought the ordinary processes of inflammation were generally present

Marinesco, of Paris, emphasized the pathogeny of the affection, which is nearly always that of an infection or intoxication

Another point discussed was the peculiarity that the terminal portions of the nerves are nearly always affected first Thus, Sharkey thought, might be due partly to the delicate structure of the nerve filaments, partly because the peripheral filaments would be more exposed to the circulating poison than would be the fibres gathered into a nerve trunk, and partly perhaps because the terminal ramifications are farthest removed from the nerve cells on which their health depends

Mott called attention to the theory promulgated especially by Marie, that the peripheral nerve-changes are not primary, but depend upon some change in the central nerve cells from which the fibres spring In the present state of the technique of examination of nerve cells, it is practically impossible in many instances either to prove or disprove the central or peripheral origin of these changes In some cases they are certainly due to direct action of the poison on the terminal filaments

Sharkey and Grainger Stewart both noted the peculiar and unexplained "affinity which certain poisons seem to have for certain nerves"¹ In alcoholic paralysis it is nearly always the extensors, especially of the legs, that first fall a prey to the poison, and are throughout the most profoundly affected, in lead poison it is the extensors of the wrist and fingers, in diphtheria the muscles of the throat and the internal muscles of the eye

Still more remarkable is it that the selective power of these toxic agents may exert itself on the motor filaments or on the sensory almost exclusively In lead poisoning, for instance, sensory alterations are hardly complained of at all, and the same is often true of diphtheria, whereas in cases of alcoholic neuritis a stage of the most

¹ The reviewer is of the opinion that it would be much better spoken of as a peculiar vulnerability of certain nerves to certain poisons

acute sensory disturbance may long precede the advent of paralysis. Indeed, there is some ground for supposing that even the trophic and vaso motor nerves may be specially picked out in some cases. The pathology of Raynaud's disease is not yet satisfactorily established, but there are certainly grounds for supposing that the remarkable vascular and trophic changes which characterize this affection are the result of disease specially affecting the vascular and trophic nerve filaments or the centres from which they radiate.

Grainger Stewart spoke of the remarkably good results he had obtained in the treatment of these cases from the subcutaneous injection of strychnine after the acute stage had passed.

Neurotic Vomiting —

In a review on 'Emaciation Insanity,' in *MEDICINE* for May, 1895 attention was called to the fact that in hysterical anorexia and hysterical vomiting the patient might not only grow extremely emaciated, but might even die of inanition.

Edes (*Canadian Practitioner*, January, 1896) in a paper replete with interesting observations and sage comments, reports two cases in which death supervened. In neither case did the careful autopsy reveal any organic cause for the vomiting or death. He also reports a third case, in which death was thought by the attending physician to be near at hand, but yet the patient recovered. All three cases seem to confirm the hypothesis advanced by Brissaud and Souques in the paper mentioned, that the trouble is not really a mental disease, and that the patient is the victim of a subconscious imperative conception (*idée fixe subconsciente*). Indeed, Dr Edes seems to have come to the same conclusion, as the following paragraphs will indicate.

"The act of vomiting is, to a certain very limited extent, directly under the control of the will, but much more completely is it, together with the whole process of digestion, indirectly subject to nervous influence.

"How easy is it to disgust a sensitive person with any article of food by some unpleasant detail as to its source or the method of its preparation! It is certainly consonant with the views of hysteria held by some theorists that a fixed idea or some incident forgotten as to the ordinary consciousness, but retained in the 'subliminal,' may be constantly exciting the centres controlling the action of the stomach. In the second of the cases reported, it is more than probable that the idea of the patient that she was not going to get well had a good deal to do with determining the result.

"If a patient believes she must vomit, she will do so. If, on the other hand, there are no nerve-endings in the gastric mucous membrane irritated by inflammation or neoplasm, no cells in the medulla to be compressed or poisoned, assurances that she need not and must not vomit are of more value than bismuth, creosote, or ice. One gentleman proposes to check hysterical vomiting by the simple plan of bringing no basin."

Arsenical Multiple Neuritis Following the Application of "Cancer Cure"—

Alfred R. Parson reports (*Dublin Journal of Medical Science*, September, 1895) the case of a woman, aged 28, who had a cancer cure applied to her breast, after the removal of the epidermis by a fly blister, and within an hour began to experience the physiological effects of arsenic. She was giddy, objects were seen double or treble, and there was tinnitus aurium. Within six hours she was vomiting severely and had diarrhea, which continued for more than a week. After three or four weeks she began to lose power in the extremities and rapidly became almost completely paralyzed. At the same time she experienced pain and paresthesia in the extremities. In about two weeks she began to improve, and it was then noticed that incoordination of all the extremities was well marked. Three months after the application of the plaster she was much improved, but was still very weak in the hands and legs, and incoordination also persisted. Eight months after the administration of the poison, the patient "was able to feed and dress herself, and walk without difficulty," but was still only well enough to be sent to a convalescent home. The "cancer cure" was found to contain a large amount of arsenic, and the affection was undoubtedly peripheral neuritis.

LARYNGOLOGY AND RHINOLOGY

UNDER THE CHARGE OF W. E. CASSELBERRY, M.D.

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The Infectious Nature of Tonsillitis Lacunaris —

Prof. B. Fraenkel, of Berlin, has practiced tonsillotomy during attacks of acute tonsillitis, especially in those whose tonsils were previously hypertrophied, and, while not recommending this practice, he mentions it in explanation of the amount of material which he has secured for the study of this disease. Incidentally he states

that the tonsillotomies made during the acute stage of the inflammation have followed the same course as others, and makes no mention of excessive hemorrhage which is usually supposed to follow the operation at this time. In tonsillitis lacunaris he asserts (*Archiv für Laryg und Rhin*, heft 1 1896) that the exudate should not be dignified by the name of pseudo-membrane, that it is composed of leucocytes and epithelial debris loosely attached to the underlying mucous membrane, and that microscopically it does not contain fibrin. He does not deny that in exceptional instances the grade of inflammation may be sufficient to establish the exudation of fibrin and for the formation of a veritable pseudo-membrane. But in making a study of tonsillitis to the exclusion of diphtheria, he thinks it best to exclude all such cases as being of doubtful origin, as well as to exclude all cases accompanied by the Loeffler bacillus.

He next calls attention to the familiar chain of systemic symptoms—fever out of all proportion to the local manifestations, rapidity of pulse, and general depression. He has observed other tonsils of the pharyngeal ring to be at the same time inflamed, next in frequency the naso-pharyngeal tonsil, after this the lingual tonsil, and also the isolated mucous lymphoid glands in the posterior wall of the pharynx. As a complication the cervical lymphatic glands are frequently involved, being swollen, tender to the touch, and possibly proceeding to suppuration. Peritonsillar abscess can supervene in a certain proportion of the cases. All of these points are reiterated in support of the theory that the disease is a general infection and not strictly limited to the tonsils themselves.

Next is described what has been observed by all operators, namely, the occasional occurrence of tonsillitis lacunaris immediately supervening upon and in consequence of operations in the nose, especially galvano-cautery treatment, but also cutting operations, such as the correction of nasal deformities, the removal of polypi, and so on. It is denied that intercurrent attacks of tonsillitis at this time are mere coincidences, inasmuch as they occur in those who have never previously had such attacks, and repeatedly in the same subject upon repetition of the nasal operations. Since a raw surface has been produced in the nose in consequence of the operation, and the mucous membrane of the tonsils is intact, the author thinks it reasonable to assume that the infectious material is transmitted from the nose through the lymphatic or blood channels to the tonsil there establishing an inflammation, rather than absorbed directly from the surface of the tonsil itself. The inflammation in the tonsils consists of a process of cellular exudation, a stream of

leucocytes coursing from within the tonsil outward to the surface, there to establish an exudate, and he thinks it improbable that streptococci should gain access to the tonsil in resistance to this outward stream. This traumatic angina, also, runs the course of an infectious disease.

The question is raised as to whether the infectious micro-organisms which excite tonsillitis lacunaris proceed necessarily from without our bodies, or are at all times present within the body, only awaiting an opportunity to become pathogenic. This question is left for future bacteriological research to answer.

Inasmuch as a typical tonsillitis lacunaris can be established by nasal traumatism, it is considered probable by the author that in attacks of rhinitis influenced by cold, the chilling influence favoring infection by micro-organisms in the nose, the infectious material being absorbed by the nasal mucous membrane may travel through the lymphatic system or with the blood, and establish in consequence a tonsillitis lacunaris. He recalls cases in which a light rhinitis preceded an attack of angina.

Contribution to the Etiology of Bleeding Tumors of the Nasal Septum —

Dr John Sendziak (*Journal of Laryngology, Rhinology, and Otology*, March, 1896) says this condition should not be confounded with the ordinary bleeding points from the septum due to excoriation or ulceration of a naturally vascular cartilage. Bleeding tumors of the nasal septum may be of various histological structure; in most cases they are simple fibromata, more or less vascular fibromata, telangiectoides or angioma-toides, and, less frequently, true angioma-ta, still more rarely the so-called cavernous angioma-ta are observed.

The author describes a case of cavernous angioma with sarcomatous points, which must be regarded as exceedingly rare. Hemorrhage had been profuse for six months, the slightest irritation of the right nostril, by touching it with the finger or on blowing the nose, exciting severe bleeding. Latterly the right nostril had become increasingly obstructed. The general health had failed, the patient became emaciated and of cachectic appearance. In the right nostril was a growth the size of a walnut, soft, very vascular, and bleeding on the slightest touch. It was subsequently discovered that the neoplasm was attached at the upper part of the cartilaginous septum, almost on the edge of the osseous part. It was removed by means of the galvano-cautery snare, one or two subsequent operations being necessary for thorough eradication.

The whole growth reminded one very much of the structure of a sponge. More minutely, competent authority designated it as *angioma cavernosum sarcomatoides*

Vocal Defects among School Teachers, with Special Reference to Teacher's Nodes —

We have heard much of singer's nodes, but it appears that in England school teachers are likewise afflicted with this disease. That we have not seen more of it is possibly due to the better conditions under which our teachers work. The pathological changes encountered bear some relation to the length of time during which the individual has taught. The lesions are classified by Dr Wm Milligan (*Journal of Laryngology, Rhinology, and Otology*, April, 1896) as follows

- 1 Subacute and chronic laryngeal catarrh affecting mainly the true vocal cords
- 2 Chronic catarrhal laryngitis, with subsequent paresis of certain laryngeal muscles
- 3 Chronic catarrhal laryngitis, with a varicose condition of the smaller vessels of the true cords
- 4 Chronic catarrhal laryngitis, with secondary pachydermic changes local or generalized

When the stage of actual node-formation is reached it is in reality the outcome of a gradually progressive series of pathological changes—slow and insidious changes due to a hyperemic condition of the blood vessels of the true cords, and followed by paresis of certain laryngeal muscles. Possibly at an early stage, or usually later, minute nodes may appear, situated upon the edge of the cords at the junction of the anterior with the middle third. Usually they are symmetrical.

The causes, as is the case with "singer's nodes," are various abuses and over use of the voice. The hours of teaching are in many instances somewhat long, the schoolmistress speaks in a large room where perhaps several classes are being held at the same time, and her voice must be raised beyond its normal pitch, with the result that marked vocal fatigue is induced. The disorder is most frequently found in female teachers, and in England it appears they commence teaching as "pupil teachers" at the early age of 13 to 16, before the vocal organs are in a position to stand strain. Also, the school is frequently on a main thoroughfare, along which there is a constant stream of traffic and noise, entailing undue vocal exertion when in summer the windows are open for ventilation. It is

also pointed out that frequently nasal and post-nasal catarrh is encountered among these same teachers, and it is suggested that this influences somewhat the laryngeal inflammation

In a few cases, marked varicosity of the blood-vessels running along one or both cords has been observed

Pathologically, it is believed that the node is the outcome of a localized inflammatory process, or chondritis

In the treatment of this condition, more is to be expected by way of prophylaxis than by local measures of cure All the conditions which have been described as necessitating extra effort or strain on the part of the voice should be avoided In addition, a course of instruction in the best methods of voice-production and voice-preservation should be taken by teachers in order that they may conserve the vocal powers When afflicted, it becomes necessary to take prolonged and absolute rest of the voice before a cure can be accomplished, and even then it is uncertain

In early cases, where perhaps the only appreciable changes are congested and inflammatory thickening of the mucosa, local applications of weak mineral astringents are beneficial, but in cases where definite nodes have formed, be they only of small size, such topical applications are almost useless. Caustics applied with nicety and precision, especially the galvano-cautery used to destroy the nodes, have resulted in cure in some instances, but must be very carefully used

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF WM L BAUM, M D,

Professor of Dermatology and Syphilology in the Post-Graduate Medical School, Chicago,
Fellow of the Chicago Academy of Medicine

Buccal and Genital Herpes.—

Fourmier (*Revue Internat de Méd et Chir*, June 25, 1896), in a lecture at the Hospital St Louis, gave the following description of the above-named eruption In man the genital herpes is located upon the penis, in woman, either at the urethral orifice or upon the vulva The base of the ulceration is yellow, but its principal characteristic is its microcyclic and polycyclic vesicle A most important variety is that which, desiccating from the centre to the periphery, assumes a papular aspect and resembles sometimes a chancre, sometimes a mucous patch Herpes may arise suddenly or by successive eruptions Its duration is variable, lasting from a few days to several weeks Most often the differential diagnosis must be made

between it and eczema, or between it and chancre. The vesicles in eczema are microscopic in size and innumerable, and disappear rapidly. The chancre is less superficial than herpes, its borders are more irregular, its base is also irregular, and accompanied by some enlargement of the glands. By placing upon a piece of glass some scrapings from a soft chancre, there are found elastic fibres which are not met with in herpes. Finally, inoculation with soft chancre shows a redness from its second day, and a vesicle upon the third which is rapidly followed by ulceration.

The fact of buccal herpes must be differentiated from mucous patches. Buccal herpes is much more painful and much more liable to become fissured. It has from the outset a marked milky tint, and long presents in the centre of its polycyclic border a whitish circle which is the last vestige of the broken down or ruptured vesicle. The microcyclic contour has a positive value. The specific treatment is injurious.

The prognosis of accidental herpes is good. Constitutional herpes is a veritable torment to the patient and opens a way to almost all infections.

The treatment of herpes is simple. Scratching must be avoided, absolute cleanliness and avoidance of all irritation are imperatively demanded. In the beginning a little lint covered with vaselin is sufficient for genital herpes. Later on, talcum powder or bismuth subnitrate is useful. All measures fail during the acme of vulgar herpes. Nevertheless, cold cream and starch poultices quiet the pain. After the subsidence of this period, baths and inert powders are useful. Buccal herpes calls for nothing but emollient gargles. In relapsing herpes a rigorous hygiene should be prescribed and the general treatment for arthritis instituted.

Serum Therapy in Syphilis —

Mueller Kannberg (*Archiv für Dermat und Syph*, vol xxxv, heft 2) read a paper before the Charity Medical Society reporting twelve cases treated with the serum. He calls attention to Kollmann's negative results obtained in 1890, also to the results of Tommasoli's six experiments with serum taken from lambs, in which all the symptoms rapidly disappeared after the injection of from two to eight cubic centimeters. It was only necessary to use this injection for ten days in order to cause all syphilitic symptoms to subside. In seven other cases the symptoms disappeared so rapidly that it was found unnecessary to use more than fifty cubic centimeters in each case, and none of these showed any recurrent

symptoms However, Fournier and Foulard, after using this serum, could not corroborate the above results

Last year Lewin decided to try the injections in his clinic at the Charity The serum used was obtained from horses and prepared by Aronsohn The first two cases treated were girls aged 17 years, neither one of whom had received any previous anti-syphilitic treatment, they received five cubic centimeters of the serum by injection in the gluteal region, after the fifth injection one was attacked by urticaria, which persisted for seventeen days, when sublimate treatment had to be substituted Up to the time of change of treatment to the mercurial, there was no change in the specific symptoms The third patient was an 18-year-old girl, with initial chancre on the upper lip and considerable enlargement of the glands, after the first injection her general condition became so serious that it was necessary to change the treatment The fifth patient contracted urticaria eleven days after the injection The sixth patient was treated for five consecutive days with five cubic centimeters of the serum, with some rise of temperature after the last injection, this was also followed by a profuse erythema and urticaria

All other subsequent cases were either attacked with urticaria or there was such a considerable rise in the temperature that the treatment could not be continued for any great length of time

As a result of these experiments, Mueller-Kannberg says he cannot see that the treatment with serum has any decided influence upon the course of syphilitic infection If we take into consideration that Kollmann's experiments also resulted negatively, we can hardly be blamed if we still prefer the sublimate treatment with its positive results to the uncertain action of horse-serum

Permanganate of Potassium in the Treatment of Diseases of the Skin —

Dr L. Duncan Bulkley (*Medical Record*, Feb 29, 1896) calls attention to a useful remedy in eczema and other pruritic eruptions Briefly, it is a solution of permanganate of potassium in water, in a strength of from 1 to 2 per cent, or possibly stronger in certain cases This is brushed or mopped over the surface and allowed to dry, which it does very quickly The well known brilliantly pink or magenta-colored fluid turns very soon to a medium dark brown, staining the skin for some little time, and is finally thrown off by exfoliation of the tissues which it has oxidized Thus far he has used it mostly in cases of subacute eczema exhibiting patches of erythematous or papulo-squamous surface He has not commonly employed it on moist or weeping surfaces; but recently a patient

applied it to such on the thigh with beneficial effects Dr Bulkley has frequently applied a little calamine and zinc lotion after the permanganate was dry, to guard against excessive action When the surface has a tendency to become too dry, he applies a little mild or negative ointment upon the dry permanganated surface. The solution of permanganate needs to be applied about twice daily, and some patients have applied it oftener with advantage As it is an oxidizing agent, it often serves very well in reducing thickening of the skin, and patches which had resisted other treatment have melted away under its use In some cases this remedy has been employed alone, and in others the patient has voluntarily omitted the additional local medication, finding that the permanganate alone sufficed to afford relief Not infrequently where other remedies had been employed ineffectively, the addition of the permanganate secured the desired result

GENITO-URINARY DISEASES

UNDER THE CHARGE OF G FRANK LIDSTON M D

Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Chicago College of Physicians and Surgeons.

Division of the Vas Deferens in Cases of Obstructive Prostatic Hypertrophy —

Mr Reginald Harrison (*The Lancet*, Feb 22, 1896) describes the methods he employs in the division of the vas deferens, and illustrates its clinical application After trying several plans after passing through the external abdominal ring, subcutaneous and otherwise, the following appeared to be the best The scrotum having been shaved and prepared antiseptically, the tube is carefully sought for as it enters this sac Held subcutaneously in position between the finger and the thumb, a vertical incision through the skin is made over it to the extent of an inch or so The spermatic cord having been recognized, the vas is separated from the other constituents by the finger and forceps, by carefully teasing away the connective tissue about it In doing this, care should be taken not to drag on the testicle too much, but to support it while a loop of the vas is detached The vas having been separated from other textures, a loop of it is gently drawn out through the wound with a blunt hook, and encircled below the hook with a silk ligature not too thick, which is tightly knotted The ligature is then cut off short, the extraneous portion of vas removed by scis-

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sors, and the pedicle dropped into place. The wound is closed with a catgut suture or two, and fitted with a small drainage tube.

There is no bleeding worth mentioning if the operation is done in this way, and the wound usually heals in the course of a few days. The author has reason for believing that in a short time the vas thus treated becomes converted into a fibrous cord, which eventually with the corresponding testicle undergoes atrophy. If before the ligature is applied the vas is carefully cleared of other tissues, pain is not usually complained of. If the spermatic cord is included in the ligature, as is sometimes done in cases of castration, pain may result. Both vasa may be so treated simultaneously, but the writer prefers treating one first, and then, if the object is not sufficiently attained, proceeding subsequently with the other. It will be found that so far as the technique of the operation is concerned relative to the general condition of an enfeebled patient, it compares favorably with either single or double castration.

If anticipations are realized, as seems likely to be the case, unilateral or even bilateral division of the vas deferens will be resorted to at an earlier period than would ablation of the testicles as a remedy for prostatic hypertrophy. The possibility of dilatation and atrophy of the kidneys from frequent and obstructed urination, as indicated by change in the urine, would be sufficient to require this operation should other measures fail in relieving the symptoms.

The author reports two cases illustrative of his remarks. The first was that of a man aged 73, who had a very large prostate, irritable bladder, and was almost entirely dependent on the use of the catheter. The frequency in passing urine increased, and the latter became very foul and ammoniacal. In the course of a few weeks phosphatic concretion took place, and some stones were removed with the lithotrite. Relief followed this, and the sound showed that the bladder was apparently clear. But the old prostatic symptoms soon returned with greater severity than ever, and the catheter was again resorted to about every hour, both day and night. In October, 1895, it was again necessary to clear the bladder of encasing phosphates, by the lithotrite, and at the same time, after explaining matters to the patient, the author took the opportunity of dividing the left vas in the manner described. The patient was in a surgical institution while this was being done, but was able to return home on the seventh day. The contrast between his condition now and what it was prior to the operation, is marked. The testis and prostate are both undergoing atrophy, the catheter enters quite easily and without provoking

spasms. He is able to hold his urine comfortably for five or six hours, and can spontaneously expel more than he previously did. Furthermore, his urine is perfectly clear, with a normally acid reaction, a condition which had never been previously arrived at.

Prostatectomy —

In the February 8, 1896, issue of the *New York Medical Journal* Dr Samuel Alexander writes on this subject. In May, 1894, in a communication read before the American Association of Genito-Urinary Surgeons at the Washington Congress, he reported two cases of prostatectomy in which he had removed the adenomyomatous growths causing obstruction to urination, by a new method, which consisted in making both supra pubic and perineal openings and enucleating the prostate through the latter. The opening in the bladder above the pubes was simply for the purpose of pressing down the prostate by the finger, so that it could be reached from the perineum. By this operation the mucous membrane of the bladder and that of the prostatic urethra remained uninjured. His first operation was performed in January, 1894.

The steps of the operation may be briefly described as follows. The patient is prepared when possible by giving a cathartic the night before the operation, and by emptying the lower bowel by a large enema the following morning. The bladder is washed immediately before the operation with a solution of nitrate of silver (1:6000). The patient having been anesthetized, the bladder is emptied by a catheter, and then distended with Thiersch's solution 10 ounces being sufficient in most cases to bring it well above the pubes. The author has entirely discarded the use of a rectal bag. The bladder is then exposed by a vertical incision between the recti muscles, and two retraction sutures are introduced through its wall. Between these an opening is made into the bladder large enough to allow the operator to insert two fingers. The cavity of the bladder and the projecting portions of the prostate are now examined. The supra pubic opening is then covered with gauze, and the patient placed in the lithotomy posture. A staff is passed into the bladder through the urethra and held by an assistant. The membranous urethra is then opened by a median section, the floor of the urethra being cut from just behind the bulb back to the apex of the prostate. This must be thoroughly done. The staff is then withdrawn, and the gauze removed from the supra pubic wound. The surgeon now washes and disinfects his hands. Two fingers of the left hand are then passed into the bladder through the supra pubic wound,

and by these the prostate is pressed downward into the perineum. With the forefinger of the right hand the surgeon begins the enucleation, which is performed entirely through the perineal opening. The outer sheath of the prostate is broken into by the finger just beneath the mucous membrane of the prostatic urethra, and the entire prostate is separated from its sheath by digital dissection. The mucous membrane of the bladder and prostatic urethra, with the underlying muscular tubing, is stripped, but not opened. The right and left lobes are first removed, after which, if there is a middle projecting tumor, this can be pressed downward into the perineal wound and enucleated in the same manner. During the enucleation the prostate is to be drawn down into the perineum by forceps. After the removal of all the prostatic growth the wound is flushed with 1:5000 bichloride solution, a perineal tube is inserted into the bladder, and a rubber drainage-tube of moderate size is placed in the bladder above the pubes. The upper part of the supra-pubic wound is then closed by sutures.

The after-treatment consists in daily washings of the bladder, fluid being injected into the supra-pubic tube. All urine flows out of the perineal tube. The upper tube is removed on the sixth day, and the lower three days later, after which the bladder is washed by catheter through the perineum for a few days. A full-sized sound is passed at the end of the second week, and then every five days until the perineal opening closes.

The advantages of this method are great diminution in the hemorrhage, the mucous membrane of the bladder and prostatic urethra is kept intact, thus avoiding the danger of septic absorption, the best possible drainage of the bladder is obtained.

Bicycle-riding upon Improperly Fitting Saddles —

Dr William W Townsend (*New York Medical Journal*, Feb 22, 1896) contributes an article on the above subject in which he says that bicycle riding with the common saddle, such as is sold with most wheels, causes a disease of the prostate and urethra, the severity of which is in proportion to the amount ridden and the relation of the buttocks and perineum of the rider to the saddle. This is a subject which he has studied considerably, having been led to do so by the number of patients coming to him with prostatic and urethral irritability who denied venereal history. This denial must in some cases be accepted with a grain of salt, but there have been cases under his observation whose honesty was beyond question.

The author reports the following case. A book keeper was referred to him by a physician who had been treating the patient for an irritability of the urethra, principally the membranous portion. Endoscopic examination of the bladder was negative. The prostatic urethra presented the caput gallinaginis swollen—the mucous membrane was livid, velvety, and sensitive to pressure, the membranous portion was swollen and exhibited a few small erosions, the bulbous urethra contained granulations. By rectal palpation, in connection with the physical and rational symptoms, a diagnosis of chronic parenchymatous prostatitis and granular urethritis was made, and a cause sought for. Venereal history was denied absolutely. Upon questioning the patient closely it was found that he rode a bicycle to excess, riding forty and fifty miles at a stretch. After such a ride the only inconveniences that he experienced were frequency of urination and dysuria. Examining the saddle used by the patient, and placing him on it in a position such as he would assume when riding, he found him to be resting the entire weight of his body on the perineum, the buttocks merely resting upon the back part of the saddle.

The author considered this the cause of the prostatic trouble and at once interdicted the use of the wheel and treated the trouble, which yielded readily.

Cases of contusion and concussion by the see-saw motion of the body over the hard horizontal saddle, producing the congested urethra, offer a fertile soil for the formation of stricture.

FORENSIC MEDICINE

UNDER THE CHARGE OF M. D. EWELL, M.D. LL.D.
Dean of the Kent College of Law Chicago

Inebriety of Insanity —

T. D. Crothers in the *Atlantic Medical Weekly* of March 7 1896, presents a study of the inebriety of insanity from a medico-legal point of view.

"Insanity" is a general term used to designate disease of the brain, and includes a great variety of degenerative processes. Inebriety is one of these degenerations, and is often pre-eminent as an insanity, and not only develops insanity, but masks and conceals it. Insanity is a fully developed, organized stage of dissolution. Inebriety is another phase of the same condition only more obscure and complex. Both are interchangeable and alternating, and both follow fixed lines of degenerative march.

In a certain number of cases the inebriety conceals the real condition, as in general paralysis. Here the drinking will appear suddenly, and be explained and justified as the result of certain circumstances, first appearing in moderation and regularly every day, then in excess at night, at intervals, and finally in excess every day. Associated with this is intense egotism and general exhilaration. These cases are taken to asylums and the spirits removed, when advanced stages of general paralysis appear. The inebriety was a symptom, and also an exciting cause. During this stage of spirit drinking, masked deliriums of an elevated nature appear. Changes of conduct and character are common.

If the facts of the case indicate some previous change and failure of reason or conduct, and the inebriety is comparatively sudden, it may be considered as a symptom of deeper disturbances. If the inebriety appears after disease, or mental or physical shock, or states of extreme exhaustion, it is clearly a symptom.

If inebriety comes on gradually, associated with exhilaration or unusual depression, grave central brain-degenerations are to be surmised. If the inebriety is marked by criminal thoughts and conduct foreign to the previous life, the higher brain centres are breaking down or destroyed. If the inebriety is of three or more years' duration and has been prominent in frequent intoxications, the insanity is to be inferred, and the possibility of sanity and normal power of reason and control is a fiction, unknown in practical experience.

The history and character of the criminal act often give a clear conception of the degenerative brain that executed it. The faults of reasoning, and exaggerations, and underrating of the results and consequences of acts, with the reckless disregard of others' interests, are clear evidence of brain failure.

The consideration and final adjustment of these cases and their acts should extend over a sufficiently long period of time to enable the court to be fully acquainted with the facts at issue.

If in a case of capital crime the accused were under medical observation for a year or more, his real condition would appear. If the act of such a person becomes a question, the same exhaustive study is essential to reach reasonably accurate conclusions.

Post-mortem Findings in Carbolic-Acid Poisoning —

The relative and increasing frequency of accidental and suicidal poisoning with carbolic acid lends additional interest to recent communications on this subject. William Moser, in the January issue

of the *Brooklyn Medical Journal*, reports five autopsies of carbolic-acid poisoning seen by him. The gums, tongue, and in fact the whole mouth, were colored white. As one would naturally expect, this discoloration affects the whole alimentary tract. The mucosa of the esophagus in the cases under observation was smooth and white and could be easily stripped from the muscularis. The mucosa of the stomach was white, with quite prominent rugæ. In opening the stomach, the odor of carbolic acid was manifest. The intestines, too, were markedly discolored. The kidneys showed, in one case, principally interstitial changes, in the others the parenchyma of the organ was mainly involved. According to Neumann, Bruckmueller, and others, fatty degeneration of the cells of the liver and kidneys is a constant pathological accompaniment in poisoning by this acid—changes similar to those which occur in phosphorus or arsenic poisoning. The author was unable to confirm this, nor is it confirmed by the observations of Salkowski. The author doubts if there is any lesion peculiar to carbolic-acid poisoning. In three of the cases the lungs were congested and edematous. The remaining internal organs presented no lesion which could be ascribed to the acid. Carbolic acid is eliminated in the urine, to which its colored derivatives impart a green, brown or black color. The vomited matter is brownish or greenish by reflected light, and has the odor of the acid. Under the microscope, corpora amylacea, fat bodies small and large, epithelial cells, large flat cells, yeast fungi, sarcina ventriculi, a few red and white blood cells, blood crystals and pigment, and in dried specimens fatty needles, were seen. The most striking picture under the microscope is the extraordinarily large number of muscle fibres. Most of these fibres were normal in appearance, but in a few the tissue was granular and fatty. They were yellowish in color. While a muscle fibre may be seen now and then in vomited material from varied causes, and is not infrequent in poisoning by other acids, it is doubtful if in any other condition more fibres, or in fact as many, occur.

A Coroner's Verdict in England —

The unsatisfactory state of 'Crown's Quest Law' is a frequent matter of comment in this country. That England is lagging in this regard is shown by editorial comment in *The Lancet* of February 15, 1896, under the caption "An Unsatisfactory Verdict." The facts set forth are that at West Hartlepool the coroner lately had occasion to investigate the circumstances leading up to the death of a lad 14 years of age, who on January 30 was engaged in

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of the *Brooklyn Medical Journal*, reports five autopsies of carbolic-acid poisoning seen by him. The gums, tongue, and in fact the whole mouth, were colored white. As one would naturally expect, this discoloration affects the whole alimentary tract. The mucosa of the esophagus in the cases under observation was smooth and white and could be easily stripped from the muscularis. The mucosa of the stomach was white, with quite prominent rugæ. In opening the stomach, the odor of carbolic acid was manifest. The intestines, too, were markedly discolored. The kidneys showed, in one case, principally interstitial changes; in the others the parenchyma of the organ was mainly involved. According to Neumann Bruckmueller, and others, fatty degeneration of the cells of the liver and kidneys is a constant pathological accompaniment in poisoning by this acid—changes similar to those which occur in phosphorus or arsenic poisoning. The author was unable to confirm this, nor is it confirmed by the observations of Salkowski. The author doubts if there is any lesion peculiar to carbolic acid poisoning. In three of the cases the lungs were congested and edematous. The remaining internal organs presented no lesion which could be ascribed to the acid. Carbolic acid is eliminated in the urine, to which its colored derivatives impart a green, brown or black color. The vomited matter is brownish or greenish by reflected light, and has the odor of the acid. Under the microscope, corpora amylacea, fat bodies, small and large, epithelial cells, large flat cells, yeast fungi, sarcina ventriculi, a few red and white blood cells, blood crystals and pigment, and in dried specimens fatty needles, were seen. The most striking picture under the microscope is the extraordinarily large number of muscle fibres. Most of these fibres were normal in appearance, but in a few the tissue was granular and fatty. They were yellowish in color. While a muscle fibre may be seen now and then in vomited material from varied causes, and is not infrequent in poisoning by other acids, it is doubtful if in any other condition more fibres, or in fact as many, occur.

A Coroner's Verdict in England —

The unsatisfactory state of "Crown's Quest Law" is a frequent matter of comment in this country. That England is lagging in this regard is shown by editorial comment in *The Lancet* of February 15, 1896, under the caption "An Unsatisfactory Verdict." The facts set forth are that at West Hartlepool the coroner lately had occasion to investigate the circumstances leading up to the death of a lad 14 years of age, who on January 30 was engaged in

his usual occupation of wheeling an old man about the streets in a bath chair, and retired to rest about 9 P M, being then in good health and spirits. At 3 A M and again at 7 A M on January 31 he complained of great thirst and also of feeling unwell, and was each time given a little water, which he drank. About 9 A M, as he still felt very ill, his mother gave him some tea and sent for a medical man, but before the latter arrived the lad expired quietly, and, as it seems, only a few minutes after taking the tea. On February 1 Dr Gray, who was instructed by the coroner "to see the body of" the lad, found it "laid out and dressed" in the room where he had died. Everything had been removed from the room except the bed, but an examination both of the furniture which had been in use and of the clothing worn by the deceased did not result in the discovery of any bottles, sweets, or other articles capable of throwing any light on the fatal issue. The body was fairly well nourished, bore no marks of violence or injury, and did not emit any odor suggestive of volatile poison. At the inquest Dr Gray, being asked by the coroner for his opinion as to the cause of death, very properly replied that it was impossible to specify the cause of death without a post-mortem examination. The jury thereupon, after a short consultation, returned a verdict of "Death from natural causes." A verdict such as this is not a protection against crime or misadventure, and obviously is of no public utility.

Death from Chloroform, with a Suit for Damages —

W E Harwood and W M Richardson (*Chicago Medical Recorder*, January, 1896) report that a suit for malpractice was brought against them because of a death under chloroform anesthesia. We believe this is an exceedingly exceptional ground upon which to base such an action. There is such a widespread belief in the community that a certain amount of danger attends the administration of all anesthetics, that when death does occur it is generally accepted as one of the untoward events for which no one is responsible.

In the case in question the physicians seem to have exercised the utmost care and diligence in administering the drug. The jury returned a verdict of "Not guilty."

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints or, if they so elect, an honorarium will be paid for original communications.

Books for review, exchanges and all matters relating to the editorial management, should be addressed to Harold N Moyer, M D, 103 State St., Chicago, Ill.

All communications relating to the business management of MEDICINE should be addressed to Geo S Davis, Publisher, Detroit, Mich.

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ORIGINAL ARTICLES

DIGESTIVE DISTURBANCES COMPLICATING OBSTETRICAL AND GYNECOLOGICAL CONDITIONS

BY A. L. BENEDICT A. M. M. D.,

Lecturer on Diseases of the Digestive Organs Dental Department University of Buffalo

The development of special interest and special skill in the treatment of a certain line of diseases carries with it an inevitable narrowing of experience, and inability to treat broadly those cases in which various organs are simultaneously affected. Two evils threaten, between which common sense and honesty of purpose must direct the course of the specialist. On the one hand is the grasping practitioner who spins so many reflex threads between the organs which he claims to treat and all other parts of the body that scarcely a disease can pass the meshes of his web. On the other hand is our professional brother who limits his work with such scrupulous nicety that the inevitable remote symptoms of a disease are the excuse for making a very ordinary case run the gauntlet of a number of doctors, with a corresponding expense and sacrifice of privacy. Every practitioner must recognize the existence of mild cases in which one specialist is justified in trespassing on the territory of another, and of severe cases in which joint treatment is necessary. It is this common ground between two specialties to which I shall ask consideration in this paper.

Probably the title of the paper has suggested the morning sickness of pregnancy as the commonest digestive disorder occurring in obstetric practice. I question whether morning sickness occurs as frequently as is commonly taught. A moderate experience with pregnancy in hospital and general practice convinced me that not more than half of all patients suffered from vomiting and nausea in

the early months, or at least that such disturbances were so slight as to have been entirely forgotten and not to be recalled by leading questions. I wish to protest against the conception of hyperemesis gravidarum as an entity. Typical morning sickness is, we must admit, a common and purely reflex complication of pregnancy. But just such a reflex may occur from various uterine and ovarian diseases, and it is as senseless to distinguish between morning sickness of pregnancy and the same condition without pregnancy as it is to draw a line between so-called puerperal fever and septicemia following an abortion. Again, serious functional dyspepsia, or even organic disease of the stomach, may originate or become exacerbated during pregnancy. The attendant who ignores the exact diagnosis and treatment of such disturbances simply because his patient is pregnant, makes the same mistake as the oculist who recognizes no gastric disease save that from eye-strain, or the laryngologist who pretends to cure every case of asthma by cauterizing the turbinate bones. I am convinced, by experience afforded through the courtesy of fellow practitioners, that local treatment of the stomach is a proper and effectual means of curing some cases of morning sickness, even in the absence of organic lesion.

Let us now turn to some of the gastric complications incident to child-bearing, that cannot be considered under the head of morning sickness. Uremia is a not uncommon complication of late pregnancy, and the most typical cases of eclampsia are due to it, but I wish here, also, to protest against the conception of a symptom as an entity. Convulsions may be due to a number of causes, and there is no valid excuse for grouping together under one name all the possible forms of convulsions that may seize the pregnant or puerperal woman. If I were asked as to experience with puerperal eclampsia, I should commit the Hibernicism of mentioning Bright's disease in which convulsions were averted, and I should omit convulsions unaccompanied with uremia and due to hysteria. Some of the most distressing symptoms of uremia, with or without pregnancy, are referable to the stomach. There is usually total lack of hydrochloric acidity, and a concomitant increase of germ life and of organic acidity. There is not only a flatulent dyspepsia to treat, but the stomach must be considered as an eliminating organ. Urea can be demonstrated in the stomach contents, and we have every reason to believe that the poisonous matters of urine are also present. Lavage is, therefore, plainly indicated, along with the usual dietetic and derivative treatment of nephritis. Hydragogue cathartics must, however, be avoided on account of their possible oxytocic action.

In other cases, without actual renal disease, the mechanical pressure of the uterus on the ureters impedes the elimination of urine—at least this is the plausible theory—and a mild counterpart of the gastric picture of Bright's disease may be produced. On the other hand, there may be cases of positive uremia without gastric symptoms.

The inactivity of the last few months of pregnancy, due to physical causes or to a modest shrinking from appearing out of doors, results in lithemia which, I believe, is essentially a functional hepatic indigestion. Proteids are normally oxidized into urea, with the exception of about a gramme each of uric acid and creatinin. This change certainly does not take place in the muscles, nor do analyses of the blood show that it occurs in the general circulation. Apparently, intermediate stages of nitrogenous oxidation, such as carnin, xanthin, leucin, and tyrosin are brought to the liver and there changed into urea, with the slight exceptions noted. Thus, an excess of uric acid plainly points to a deficiency of hepatic function. It has been quite generally accepted that lithemia was due to deficient renal elimination, like uremia, but the crudest quantitative tests show that the urine contains an excess of urates. It is proper to aid elimination by administering large amounts of water, alkaline diuretics, etc., but the liver must not be forgotten. Sometimes a diminution of nitrogenous food will suffice, but this should be avoided, if possible, in the case of one building new tissues as well as replacing her own waste. Forced exercise, massage, assistance of gastric digestion, stimulation of the liver by counter irritation or such drugs as nitro-hydrochloric acid, ammonium chloride, and even ipecac, may be of service.

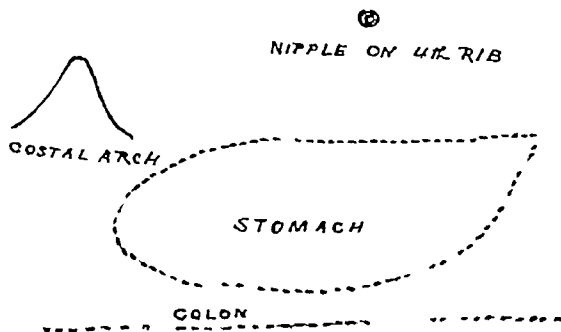
Of the organic hepatic complications of pregnancy, I shall mention only fatty metamorphosis, as other diseases are comparatively slow of development and need no especial consideration. Acute yellow atrophy has as its most common cause—omitting toxic forms due to phosphorus, etc.—the nutritional disturbances of child bearing. Attention is called to this disease, not because I have anything to offer as to treatment, but because future knowledge must come especially from those who have the care of the pregnant woman.

Some physical and mechanical conditions of pregnancy deserve consideration. The circulation is somewhat embarrassed during the early months, till the heart becomes hypertrophied, and again toward the close of pregnancy, when the pelvic tumor presses on the veins returning the blood of the lower extremities. Respiration is

also interfered with at this time, and thus, indirectly, again the circulation suffers. The blood is hydremic, and the various organs of nutrition must perform double duty both as to assimilation and elimination. A tremendous strain is also imposed on the nerve centres, both conscious and vegetative. Probably most medical students have been laughed at for including pregnancy among the diseases of women, but the very custom of associating gynecologists and obstetricians into one section, and the experience of almost every practitioner, is an admission that practically, if not logically, the direct dangers and indirect results of pregnancy make it the most serious disease to which civilized woman is liable. Some degree of hepatic engorgement and of gastric congestion is almost inevitable, and probably this fact explains the malnutrition and loss of weight to which most pregnant women are liable. A tendency to exudative catarrh, to sluggish secretion, to imperfect absorption, and finally to imperfect elaboration of food materials absorbed into the portal circulation, exists. Yet the very frequency and inevitableness of these physiological changes precludes all thought of relegating them to the digestive specialist. But I do plead for a more general realization of the precarious nutritional condition of the pregnant woman, and ask that this fact be not covered up with the sweeping assertion that pregnancy is a physiological state. At times, without any real organic lesion of the digestive organs, starvation seems imminent, and, aside from considering the advisability of terminating pregnancy—which is out of my province—the predigestion of foods, rectal nourishment, inunction of fats, drugs that assist and stimulate digestion and absorption, must be thought of.

One of the inevitable mechanical results of pregnancy is the upward dislocation of the stomach. Given a small woman, a tight corset, and a large uterus, there is an actual lack of room for the stomach. Even the amount of air swallowed with a meal, and the natural gas-formation during the first hour of digestion, cause an unpleasant feeling of fullness and such a pressure against the diaphragm as to impede respiration and embarrass the heart, perhaps to the extent of producing palpitation. The specialty of gynecology and obstetrics is rendered simple in one particular, namely, that all normal women have pelvises of practically the same size and shape. The liver, stomach, spleen and intestine lie in a part of the body which varies both as to size and shape within wide normal limits, and these organs themselves may differ considerably without pathological change. It is not only difficult to draw the dividing line between the normal and the abnormal, but it is evident that the

same change in the uterus produces in perfectly healthy women more or less embarrassment of the digestive function according to the waist measure and the capacity of the thorax. Aside from ordering loose clothing and preventing gastro-intestinal fermentation by prescribing small meals and proscribing certain rich foods, I know of no way to counteract the mechanical disturbance of a normal pregnant uterus acting against a stomach which functionates physiologically. But in such a case the least interference with secretion and motor power calls for digestants and anti ferments. The



⊙ UMBILICUS

FIG. 1

accompanying chart will illustrate the normally abnormal position of the stomach during the last month of pregnancy. As in morning sickness, we need not expect the stomach to discriminate between the effects of a pregnant uterus and of some pathological growth from the pelvis, unless the latter condition is accompanied by a dyscrasia. Some women are never so healthy and so well nourished as toward the close of pregnancy, and this paradox is explained, I believe, by the pre existence of a sagging of the stomach. This condition is not at all rare among men, and is the usual condition in women of flabby abdominal walls who lace tightly or who support the weight of heavy skirts from even moderately loose waist bands. The support afforded by the pregnant uterus is an ideal relief of such a state, acting as a pessary to the stomach.

I wish to call attention to a subject which is not well understood, but in which we have, at least, gone so far as to realize our ignorance. Gastric ulcer is no longer considered the fulminating result of a neurosis occurring in the first decade of adult life. The majority of ulcers are now known to present no marked symptoms during life, to occur in persons of middle age, and to persist for years. It is significant that in males about 60 per cent of ulcers are found at or near the pylorus, and that in females about 40 per cent are situated on the lesser curvature. Otherwise, there is no regularity of distribution. Stoll explains the sexual difference as follows. In males, the impact of the stomach contents, with respiration, is mainly against the outlet, in females, corsets and bands compress the stomach against the liver, and the blow of the diaphragm is transmitted to that portion of the stomach which is firmly resisted by the liver—in other words, the lesser curvature. Now it may be that the rise of the uterus still further predisposes to the formation of an ulcer. The mechanical theory accounts only for the relative frequency of location, and does not conflict with the neurotic nor even with the infarctive theory of origin. Certainly, neurotic influences are rife during pregnancy, and there is no diminution of the chances of a possible infarction. I have taken the liberty to dwell on this point because it is the legitimate purpose of a medical paper not only to present what is known, but to call attention to subjects which need investigation, and since, if there is any causal relation between pregnancy and gastric ulcer, the gynecologist has opportunities to observe the trouble in its inception.

There seems to be no relation between obstetrical and gynecological lesions and carcinoma of the digestive organs, save the negative one that if a parous woman is to have a cancer at all it is most apt to locate in the uterus or breast. Still, women are by no means immune from cancer of the stomach.

Pancreatic diseases, including diabetes, are not known to have any special connection with conditions of the generative organs, though the nervous strain of childbirth and anxiety over pelvic disease might be expected to act as exciting causes of diabetes.

The small intestine suffers the same moderate degree of depression of function during pregnancy that has been noted in the case of the stomach and liver. Flatulence and intestinal indigestion secondary to imperfect chymification are also quite common. Infectious diseases, such as cholera and typhoid, are neither invited nor repelled by pregnancy or gynecological disorders, but the prognosis is naturally more grave if the infection is contracted by a woman in these states.

The large intestine is liable to pressure from the uterus, and we may assume that the more liberal blood supply to the pelvic organs in cases of pregnancy or tumor is a contributory factor in the production of catarrh and of hemorrhoids, the former being not uncommonly, the latter almost always, present in pregnancy.

Disturbances of the motility of the bowels are quite common during pregnancy. I question, however, if the relation between constipation and pregnancy is as direct as has been assumed. We must remember that a large proportion of women are always constipated, and that in many others the constipation during pregnancy is simply due to inaction. When there is a positive obstruction, through pressure on the lower bowel, as in all cases of moderate constipation due to lodgment of feces, irritation is apt to produce intermittent diarrhea, the discharges then usually contain scybala, and are not characteristic of either dysentery or cholera, as some writers have claimed. As to cathartic remedies, aloes is particularly contra-indicated as tending to produce congestion of the pelvic organs, and for the same reason all other irritant drugs or excessive doses of mild drugs should be avoided. Emetics may be employed with benefit, but they should not be allowed to stimulate uterine contraction either by extremes of temperature or by containing such ingredients as glycerin, turpentine, large quantities of soap, etc.

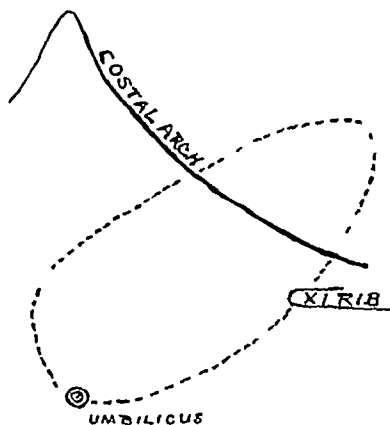


FIG 2.

Fig 2 shows the position of a stomach with chronic catarrh and dilatation, four hours after a meal when relatively small. This

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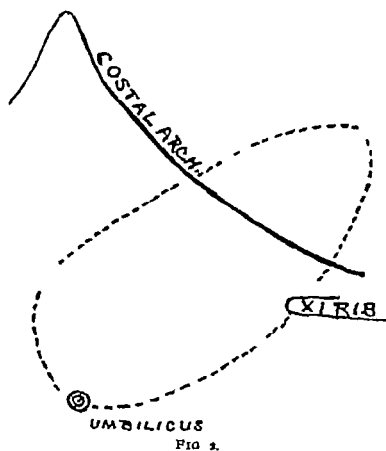


Fig. 2 shows the position of a stomach with chronic catarrh and dilatation four hours after a meal, when relatively small. This

patient was referred to a gynecologist to be cured by trachelorhaphy. Fortunately, he recognized the futility of pelvic surgery alone.



FIG 3

The photograph (Fig 3) is introduced to show the normal areas of heart, liver, stomach, and colon, by auscultatory percussion. The lines in the epigastrium indicate the pyloric end and the beginning of the duodenum, which are sometimes percussible. The dark lines over the sixth rib, right side, mark the beginning of hepatic flatness by ordinary percussion.

Having referred frequently to gynecological conditions along with pregnancy, I will conclude with a few disconnected allusions to the former. Quite recently I was called to see a patient who had been treated for hepatic or renal calculus, the history being vague.

There was excess of urates, pain in the region of the left kidney and ureter, and an account of exacerbations that made the diagnosis of renal calculus reasonable though not decisive. From the vomited matter, and the account of gastric disturbances extending over the last four years, a moderate gastric catarrh evidently existed. Obstinate constipation and pains referred to the distribution of both sciatic nerves—the front of the thighs being conspicuously free—suggested pressure from a tumor, which would also account for the pain in the course of the ureter. Digital examination revealed such a mass, and, as soon as practicable, the services of a gynecologist were secured, the family being informed that no permanent results could be obtained till some sort of an operation had been performed. The mass proved to be a large retro-uterine abscess. The evacuation of nearly a quart of pus by Dr C C Frederick relieved the pain almost immediately, morphine, which had previously been necessary in spite of its bad effect on the digestive organs, could now be withdrawn, and the improvement was so marked that no further need was felt for my services. Though the gastric lesion probably remains, I acknowledge most heartily the debt of gratitude due the gynecologist.

Seven years ago I performed an autopsy on a patient who had died after profuse hemorrhage from the stomach and bowels, lasting a week. The entire gastro intestinal tract was filled with blood and mucoid matter. The hemorrhage was traced to a large adenoma of the ovary, which had perforated into the colon. It is interesting to note the ultimate cause of a condition which had been treated as some form of gastric or intestinal ulcer, and also that the vomited blood had passed upward through the ileo-cecal valve and through the whole length of the alimentary canal above. Only the gynecologist could have afforded the possibility of cure in this case, which was apparently due to a lesion of the digestive tract. Allow me to draw the moral that every practitioner ought to be able to make a digital examination and to determine, approximately, the condition present and also that any serious illness occurring in a woman should lead to the careful consideration of the state of her pelvic organs. And let me conclude with the more general proposition that we are all dependent on one another, that each must recognize his own limitations, and that the welfare of our patients depends upon our willingness to seek and render mutual aid as much as it does upon individual qualifications.

SOME OBSERVATIONS UPON THE IMMUNIZING AND CURATIVE EFFECTS OF ANTITOXIN

BY W M DONALD, M D ,

Lecturer on Biology and Clinical Medicine at the Detroit College of Medicine, Attending Physician to the Protestant Orphan Asylum

That the profession is by no means a unit upon the question of antitoxin in the treatment of diphtheria, and still less so in regard to the efficacy of the serum in the immunization of individuals exposed to this dread disease, can be easily demonstrated by any one who will take the time and trouble necessary to interrogate the first twenty practitioners he may meet

Should the inquirer be an antitoxin enthusiast, with abundant experience in the use of the serum, he may be somewhat staggered at the number of medical agnostics he meets, if indeed he is fortunate enough to avoid the out-and-out skeptics and unbelievers who abound in every community 'Tis true that in the past two years oceans of ink have been sacrificed in placing upon tons of paper the observations and statistics of many of the leaders of medical thought relating to this subject, and still the rank and file are unconvinced

A variety of causes dispose to this result The fads and fancies which have flitted in kaleidoscopic vision before the eyes of the medical profession during the present century, and which have danced away into oblivion, make most men skeptical of any therapeutic innovation Of the myriad of new remedies brought out during the past decade even, probably those which have survived the fire of investigation could be counted upon the fingers, hence it is reasoned—this new drug may be only another of the many filmy visions which will, like the rest, pass into forgetfulness

Then, again, the dangers incident to the admixture of any fluid with the human blood have been burned into the minds of the majority of practitioners ever since the early days of their training in the physiological lecture-room Untoward symptoms developing in a case in which antitoxin has been used, and reported in the medical press, are at once, by virtue of this early training, associated with the use of the serum, an "I told you so" state of mind is developed, previous skepticism confirmed, and the decision reached that the reader's patients may die of diphtheria, but at least they shall not be killed with antitoxin

And yet again, the inertia of some minds is such that unless a proposition is presented with a sort of cannonading effect, they are immovable Ordinary argument does not affect them in the slight-

EFFECTS OF ANTI DIPHTHERITIC SERUM

est degree truth must be presented like the rush of a mighty river sweeping against a dam and carrying with irresistible force everything before it

If it be true, as intimated then, that there is a wide divergence of opinion in the medical profession regarding diphtheric antitoxin I take it that any series of cases that tend to throw light upon this moot question will be of value and beg leave to present the following notes upon a large number of cases treated with this drug.

On April 2 a case of laryngeal diphtheria developed in Protestant Orphan Asylum of this city. Familiar with catarrh of the larynx and croup led the attendant to attach no importance to the symptoms of the case, and when I was first called the child was almost asphyxiated and had associated for several days with the child. He was immediately sent to the contagious disease ward of Harper Hospital, in a vain effort to guard the exposed children and the most rigid disinfection practiced. Despite these precautions in a few days five cases of sore throat developed, showing all the clinical signs of mild diphtheria. They were isolated in the asylum infirmary, each given an injection of 500 units of anti diphtheritic serum (antitoxin), and treated locally every three hours to a gargle containing four minims of tincture iron chloride which they were urged to swallow.

No bacteriological examination of the throats was made for several days, not in fact till improvement was quite manifest. Then nothing was found but staphylococci and streptococci. The lack of bacteriological evidence prohibits any definite conclusion, but the clinical signs, in connection with the fact of exposure through contact with the first case (in which Loeffler bacilli were found), would point to the conclusion that these were cases of true diphtheria, but yielding readily to the local applications and injections of the serum. Certain it is that the small amount of exudate and the greatly enlarged tonsils and glands seemed to melt away within twenty-four hours of the injection of antitoxin.

On April 9, or seven days after the first case was discovered another well marked case of diphtheritic pseudo-membrane of the tonsils and pharynx cropped up, with Loeffler bacilli in abundance. This case was also sent away to Harper Hospital, contagious ward, and no further record was kept of it or of the first case reported. It may be said in passing, however, that both were treated at the hospital with liberal doses of anti diphtheritic serum (antitoxin), and both recovered.

It being apparent by this time that the contagium was in our

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If it be true, as intimated then, that there is a wide diversity of opinion in the medical profession regarding diphtheria antitoxin, I take it that any series of cases that tend to throw light upon this moot question will be of value and beg leave to present the following notes upon a large number of cases treated with this drug

On April 2 a case of laryngeal diphtheria developed in the Protestant Orphan Asylum of this city. Familiarity with catarrhal croup led the attendant to attach no importance to the symptoms of the case, and when I was first called the child was almost asphyxiated and had associated for several days with the other children. He was immediately sent to the contagious disease ward of Harper Hospital, in a vain effort to guard the exposed children, and the most rigid disinfection practiced. Despite these precautions, in a few days five cases of sore throat developed, showing all the clinical signs of mild diphtheria. They were isolated in the asylum infirmary, each given an injection of 500 units of anti diphtheritic serum (antitoxin), and treated locally every three hours to a gargle containing four minims of tincture iron chloride, which they were urged to swallow.

No bacteriological examination of the throats was made for several days, not, in fact, till improvement was quite manifest. Then nothing was found but staphylococci and streptococci. This lack of bacteriological evidence prohibits any definite conclusions, but the clinical signs, in connection with the fact of exposure through contact with the first case (in which Loeffler bacilli were found), would point to the conclusion that these were cases of true diphtheria, but yielding readily to the local applications and to injections of the serum. Certain it is that the small amount of exudate and the greatly enlarged tonsils and glands seemed to melt away within twenty four hours of the injection of antitoxin.

On April 9, or seven days after the first case was discovered, another well marked case of diphtheritic pseudo-membrane of the tonsils and pharynx cropped up, with Loeffler bacilli in abundance. This case was also sent away to Harper Hospital, contagious ward, and no further record was kept of it or of the first case reported. It may be said in passing, however, that both were treated at the hospital with liberal doses of anti diphtheritic serum (antitoxin), and both recovered.

It being apparent by this time that the contagium was in our

midst, and probable (in fact, almost certain) that more cases would develop, it was decided to offer our children the protection, if there was such, of immunizing doses of antitoxin

On April 10, then, eighty children, aged from two to fourteen years, received each a dose of 250 units of the anti-diphtheritic serum. This was generously supplied by Messrs Parke, Davis & Co., of this city, in what they call ampullæ, each ampulla (a small glass vial hermetically sealed) containing one immunizing dose of about one cubic centimeter

The injections were made from an ordinary, large-barreled hypodermic syringe, deep into the muscles of the buttocks. This intra-muscular injection was done, contrary to the generally accepted method of subcutaneous injection, principally because of lessened liability to needle breakage. It was found that with the involuntary start or jump of the child upon the introduction of the needle, the bending of it was less, and the apprehension of breaking it, in the mind of the operator, was correspondingly less. The results were just as satisfactory and the amount of pain as slight, so far as we could determine, as with the ordinary injection into the subcutaneous cellular tissue. 'Tis true the amount injected in each case was very small, namely, about a cubic centimeter, and I may be permitted to digress for a moment to speak in a commendatory manner of the efforts being now made by antitoxin-manufacturers to produce a more concentrated serum. A hypodermic injection is at the best an unpleasant thing for a child to face, and with the old method of a large antitoxin syringe, a large needle, and a large quantity of serum, the prospect was not, to say the least, made more alluring. But with a small needle, an ordinary syringe, and about fifteen drops of fluid, the injection is robbed of much of its terrors.

But to return to our subject. From April 11 to 13, three new cases of sore throat were discovered, these were immediately isolated in our infirmary, cultures were made from the throats, and as a precautionary measure each received another injection of 500 units of antitoxin. Local treatment with tincture of iron chloride was used in two cases, but no internal medication. Improvement was immediate, within forty-eight hours the throats were clear of membrane, and the tonsils, which had been greatly enlarged, were reduced to an almost normal condition. Bacteriological examination revealed nothing but staphylococci and streptococci.

Now here was a singular thing: three cases of sore throat presenting the clinical signs of commencing diphtheria of moderate

degree, occurring in an institution from which two cases of undoubted diphtheria had been removed within ten days, showing nothing by bacteriological examination but cocci, and yet exhibiting immediate improvement upon the use of antitoxin. What does this all mean? In the first place, it probably means that the immunizing dose of a day or two previous inhibited the growth of Loeffler bacilli or destroyed them and modified the character of the inflammation, so that instead of the cultures showing the bacillus of diphtheria they showed only those of coccus infection. In the second place it probably means—and I speak not from these three cases alone, but from several others in which similar observations were made—that diphtheria antitoxin has some effect upon cases of sore throat in which no Loeffler bacilli can be found even by repeated examinations. Just what that effect is, I do not feel competent to say whether it be stimulant or alterative, or what not, but that in these cases we found an immediate improvement follow the use of the serum, I do know. I am perfectly well aware that many of these cases of pseudo-diphtheria improve very rapidly under indifferent treatment, or no treatment at all, and I am also perfectly well aware that it is unscientific and not in accord with the dictum of sero-therapists to claim any neutralizing influence from diphtheria antitoxin upon the toxins of streptococcus inflammation, and yet I cannot but feel that in my hands antitoxin has had a mitigating influence upon the progress of some of these cases.

On the 14th instant another case of mild sore throat was quarantined. A bacteriological examination showed it to have Loeffler bacilli present. The patient (a boy) had been allowed to play for a day with one of the three children mentioned above, before the diagnosis was made, and repeated cultures from the throat of the latter for a period of two weeks showed the Loeffler bacilli present there also. She did not show the least sign of diphtheritic infection, nor was she at all ill in any way, and yet these pathogenic organisms continued to grow in her throat.

Between the 15th and the 20th five more mild cases were quarantined, but nothing was discovered in the throats except cocci. They received mild astringent and antiseptic gargles, and were about to be dismissed on the 21st.

On this date another case, Julia K.—, aged ten, was sent to the infirmary at 9 A.M., and the attendant, considering it a case similar to the others, did not notify me, but allowed her to remain in the same room as the convalescents. I did not see the case until 3 P.M., when I found the right tonsil and uvula covered with a

no room for doubt in this case, as only a slight exudate of yellow, cheesy matter filled one or two of the crypts in each tonsil. A culture was made, however, from the throat, and almost a pure culture of Loeffler's bacillus obtained.

What conclusion can be drawn from these last five cases cited, but that the only certain method of diagnosing true Loeffler diphtheria is by bacteriological examination?

To the writer's mind it has been abundantly proved that clinical signs in mild cases of throat inflammation are deceptive, particularly where diphtheria is endemic. Without bacteriological examination, all suspicious cases should be treated as if they were diphtheria.

In addition to the eighty children immunized on April 10, seven more were immunized within a week afterwards, thus making a grand total of eighty-seven. Out of this number, two developed urticaria—respectively seven and fourteen days after injection. Beyond a slight soreness at the point of injection, and slight febrile reaction in a few cases of the younger children, lasting for forty-eight hours, there were absolutely no other bad symptoms.

From the extended observation and critical analysis of these cases it would seem that there may be drawn the following

CONCLUSIONS

- 1 That antitoxin in immunizing doses is absolutely harmless
- 2 That immunizing doses *do* immunize for a period of at least several weeks
- 3 That Loeffler bacilli may grow in the throat of an immunized person without causing diphtheria
- 4 That it is often impossible to diagnosticate mild cases of faucial irritation without bacteriological examination
- 5 That antitoxin seems to have some helpful influence in cases of faucial irritation due to cocci development
- 6 That in true Loeffler diphtheria, antitoxin is harmless and is also quickly curative
- 7 That the minimum dose should be 600 units in cases of moderate severity in children from six to ten years of age
- 8 That injections deep into the muscular tissue are as safe and satisfactory as are subcutaneous ones

I cannot close this paper without expressing my warm appreciation of the valuable work done by Dr. E. M. Houghton, who conducted all the bacteriological examinations required in connection with this series of cases.

THE TREATMENT OF HEMOPTYSIS ¹

BY ROBERT H. BABCOCK A.M. M.D.

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In response to a request from our President to ascertain the treatment of pulmonary hemorrhage employed by Chicago practitioners, I addressed letters to thirty representative physicians, most of them teachers in one or more of our faculties. Twenty seven replies were received, from which the following figures have been tabulated. Eighteen insist upon absolute physical rest in recumbent or semi recumbent positions and three added that they permitted no talking. Cold to the chest is ordered by thirteen, usually in the form of ice. Nine administer opium and eight morphine hypodermically, making seventeen in all who employ opium in some form or other, either to allay cough or to promote mental calm. A few state that opium is their sheet anchor. Ergot is employed by fifteen, a few however stating some doubt as to its utility. One said he thought ergot only proved efficient when in doses sufficient to produce nausea. One administers Tancrét's ergotin subcutaneously in doses of from six to eight minims, and mentioned no other treatment. Eleven are positive that ergot has no efficacy in controlling pulmonary hemorrhage. Six make use of acetate of lead, either with or without opium, two, tannic acid, two, gallic acid, one, dilute sulphuric, and another aromatic sulphuric acid. Six prescribe ipecac—five the syrup, and one the powder in an emetic dose after the manner of Trousseau. Four give aconite, and two veratrum viride. Salt is recommended by seven, one of whom relies largely upon it because, in his opinion, sodium chloride "is an excellent hemostatic, if one may use the term in connection with a remedy which probably acts by modifying the quality of the blood." He administers the salt freely, either by the mouth in water or in the food, or by the rectum (a drachm of salt to an ounce of tepid water), or subcutaneously in the form of a normal salt solution. Four advise mild laxatives, but do not specify the particular laxative employed, with the exception of the advocate of salt, quoted above, who recommends phosphate of soda because "of the physiological fact that the phosphate present holds the other salines in solution, thus making the common salt taken more effective." One only employs sprays to the larynx and trachea of solutions of iron,

¹ Contribution to the discussion of hemoptysis, at the meeting of the American Climatological Association held at Lakewood N. J. May 1896.

"liquor ferri subsulphatis, ten to twenty minims to the ounce, or the tincture of the chloride of iron, from twenty to thirty minims to the ounce of water, repeated three or four times daily" One says he uses phenacetine internally, depending upon the cause of the hemorrhage, and (after the attack) rest, light diet, and tincture of iron internally Two speak of employing ligatures to the extremities, close to the trunk, during the attack, one specifying slight constrictions of the lower extremities to prevent the return flow of blood to the lungs One, who congratulates himself on having had but a limited experience in this line, says that in one case with repeated slight hemorrhages, hemoptysis ceased twice after atropine hypodermically had produced dryness of the mouth The advisability of light unstimulating diet was dwelt upon by three

In most instances the rationale of the treatment employed was not given, except perhaps to state that opium or morphine was used to quiet cough and allay excitement or restlessness By one the remedies were advised in accordance with the cause of the hemoptysis and the condition of the arterial blood-pressure The bare statement of therapeutic measures, which thus gave an appearance of pure empiricism, was probably due to the wording of my request, which asked for a statement of treatment and said nothing concerning the reasons prompting to any line of therapy

It is apparent, however, that most of the various measures and remedies mentioned are employed for the attainment of two great ends—either the constriction of pulmonary blood-vessels, or the formation of a clot at the seat of hemorrhage through lessening the blood-supply to the lungs by tranquillizing circulation in general or diminishing blood-pressure in the aortic system It seems to me, however, that there are certain considerations which furnish a clear indication for treatment Of course I speak only of hemoptysis depending upon pulmonary tuberculosis, the one preponderating disease in which it is observed

In the early stage, hemorrhage from the lungs is in most instances the result of active hyperemia, and ceases as soon as the too active flow of blood to the lungs is corrected When the hemorrhage arises from the ulceration or rupture of a pulmonary artery, the opening must be closed either by the contraction of the vascular coats or by the formation of a coagulum Hence the administration of ergot, acetate of lead, gallic acid, and the like But do these remedies accomplish the end sought? The effect of ergot is either denied altogether or considered doubtful by many clinicians Open-chowsky claims to have demonstrated, by means of a manometer

introduced into the pulmonary arteries of lower animals that drugs which affect blood pressure within the aortic arterial system exert no effect upon the pulmonary arteries except indirectly through their influence over aortic blood pressure. Landois states that "contraction of small arteries, which causes an increase of blood pressure in the systemic circulation, also raises the pressure in the pulmonary circuit, because more blood flows to the right side of the heart," also that "the vaso-motor system has much less effect upon the pulmonary blood vessels than upon those of the systemic circulation." These considerations make it probable that ergot not only does not produce contraction of the pulmonary capillaries, but through its constriction of the systemic arterioles raises blood pressure within the pulmonic system and would theoretically aggravate rather than ameliorate hemoptysis in the stage of excavation. The application of ice to the chest is said by Landois and Winternitz to produce contraction of the pulmonic capillaries, and its employment is of course based on this theory. Its effect cannot be localized, and it may be applied indifferently to various parts of the chest instead of over the probable seat of hemorrhage. Indeed, Winternitz advocates the application of ice-bags to the supra clavicular spaces. The power of increasing the coagulability of the blood claimed for gallic acid is questionable, and the vaso-motor constrictor effect of tannic acid, acetate of lead and mineral acids is open to the same theoretical objection as is ergot.

It seems to me, therefore, that the surest method of producing contraction of the pulmonary vessels is by lessening the volume of blood flowing through them, if indeed that be at all possible, and that this is best accomplished by dilatation of the systemic arterioles—in other words, by bleeding the patient into his own vessels. Furthermore, the retardation of the circulation favors the coagulation of the blood at the seat of the hemorrhage. To meet this two-fold indication, arterial and cardiac depressants are employed. Aconite and veratrum viride produce arterial relaxation and slow the pulse-rate, but do this chiefly through their effect upon the myocardium. There is therefore certain danger of too greatly weakening the heart's action, and a drug which produces vaso-motor dilatation primarily and a subordinate degree of cardiac asthenia is preferable. Such a remedy is ipecac, and administered in doses sufficient to maintain nausea it is not only theoretically but empirically useful.

In conclusion permit me briefly to state the treatment I employ. For the hemoptysis of active hyperemia, I quiet the cough—prefer-

ably by phosphate of codeine, one-quarter to one-half grain hypodermically, or one-half to one grain by the mouth, prescribe syrup of ipecac in frequent doses until nausea is produced, and order an efficient but not severe aperient, preferably Hunyadi or Rubinat water. If the hemorrhage arise within a cavity and be profuse, I order the immediate injection hypodermically of one-fiftieth or even one twenty-fifth of a grain of sulphate of atropine. It is rarely my lot to reach the bedside during such an attack, but in cases in which profuse hemoptysis is likely to recur I leave orders with the nurse to resort at once to this treatment. This dose promptly produces pronounced physiological effects, but is not dangerous, and the initial increase in the heart's rate and vigor is offset by the vasomotor paresis occasioned, which diverts the blood to the periphery.

It may also be urged that the effect of a full dose of atropine corresponds to that produced by the application of heat to the surface of the body. Shueller's experiments with animals showed that contraction of internal vessels promptly follows the application of heat to the integument, as of the abdomen. It may be that the flushing of the skin caused by atropine acts like the application of heat by causing the contraction of internal and therefore pulmonic vessels. However this may be, I believe that if anything will promptly arrest profuse pulmonary hemorrhage, it is atropine administered in this way. The subsequent treatment is all directed to the maintenance of the effect obtained by the atropine, and consists essentially of ipecac, codeine, and laxatives, in doses varying to suit the requirements of each case. It goes without saying that absolute physical and mental rest is insisted upon, and the diet is light and unstimulating. In a word, I believe that when our efforts have been directed to keeping the lungs quiet and the blood in the periphery of the body, we have done all that can be done for the relief of hemoptysis, Nature must do the rest.

THE CARE OF THE TEETH IN CHILDREN¹

BY EUGENE L. CLIFFORD D D S

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A few cases which have fallen into my hands within the past year, and which could have been and should have been prevented, lead me to ask the assistance of the family physician in maintaining perfect harmony within the oral cavity, or at least of the masticatory apparatus. It may be that up to this time he has not realized that it is within his sphere, and indeed wholly his professional duty, to instruct his little patients and their parents as to the value of oral hygiene, until such time as it is usual to claim the attention of the family dentist. I say "usual," for it is true that these consultations are postponed too long—in fact, generally until some irreparable injury has resulted which even the skill and experience of the dentist can only palliate. The dentist is powerless to prevent a great many conditions which are lamentable when understood and appreciated, the patient does not come under his care until the damage is done, or until such progress is made that calamity is inevitable.

Preventive medicine we believe to be the field which shows the highest professional attainments, and the dental specialist of to-day fully understands that his most important function is to so care for the development, growth, and arrangement of the teeth as to preclude the necessity for restoration. Indeed, the highest attainment in any specialty of the healing art is to so instruct the people that they will not require a remedy. Dentists should be as competent to prevent disease as to treat it. Prevention should almost supersede what is now known as practice. Truly, 'He who teaches us the power to profit by the past, and to build upon its foundation intelligently, leads us from the wilderness of doubtful procedure to the promised land of highest attainments.' It has been fully demonstrated by one of our specialists that not only is it possible to move and rearrange the teeth themselves, but the alveoli and bones of the face are also susceptible to movements and changes which correct and improve many facial deformities, by the proper application of force upon the teeth. If, therefore, I shall be able to awaken new interest and co-operation in this field of orthopedic surgery, a field which

¹ In the preparation of this paper I would make acknowledgment to the authors Gullford, Angle, Case, and Kingsley.—E. L. C.

it seems almost impossible for the dentist to cultivate alone, from the very nature of the case, I shall feel encouraged

Orthodontia, that branch of dental practice which relates to the correction of irregularity of position of the human tooth, has only been recognized as a distinct specialty of general dentistry within the past few years. It has now, however, with the natural growth of dental science and the enlargement of its sphere, grown in importance, until to-day it is engaging the attention of some of the best minds in all branches of medicine, and forms an important part of the study of every dental student.

Progress has been marked by the invention of a multiplicity of devices and appliances for the more easy and perfect correction of this class of deformities.

A deformity may be defined as a deviation from the normal outline on the part of several or all of the teeth, or as the malposition of one or more individual teeth, and, being an abnormality, corrective measures should, as a rule, be resorted to.

The causes responsible for the production of an irregularity are many, and at best but imperfectly understood. Some of them are operative before birth, and others afterward. They are, therefore, usually classified as *hereditary* and *acquired*. As an example of the first—peculiarities that existed in near or remote ancestors, characteristics of both parents who were themselves free from dental abnormality—the intermarriage of races with widely different characteristics, etc., may be mentioned. Causes falling within the scope of the second class (acquired), and productive of unsightly and unfortunate results during or subsequent to dentition, far exceed in number those due to heredity.

Probably those most common, and which could, in a large number of instances, be prevented by the judicious and trusty assistance of the family physician co-operating with the competent specialist, are the "long retention of deciduous teeth, or their too early extraction." It was and is the intention of nature that the deciduous teeth should subserve the wants of the child until replaced by the permanent set. The crown of the permanent tooth *should* occupy its proper position beneath the root of the deciduous one which it is intended to supplant. When it does, eruption is a physiological success. Deviations, unfortunately, are not infrequent. Absorption of the deciduous root does not take place, and the tooth is too long retained, requiring skillful interference. Such a condition may be recognized by frequent examinations of the gums and alveoli, and, when distention is prominent, consultation should

be advised. A little care and watchfulness on the part of the parent and physician would save future discomfort and expense. There being no general law laid down to answer for all cases, each becomes a study of its own, and sometimes the greatest skill and experience are required in choosing the proper course. For, if great damage results from too long retention, greater, by far, is often the result of too early extraction. In fact premature extraction often prepares the way for some of our most unfortunate results.

Some few facts we would impress upon the general practitioner. The deciduous teeth are only temporary, but their importance is scarcely second to that of the permanent. The deciduous teeth are *very seldom* irregular. They occupy their proper places in alveolar arches of proper size, resting upon a suitable maxilla. Thus jaw, process and teeth are harmoniously correlated, and the deciduous tooth will, at the proper time be succeeded by the permanent one which, under normal circumstances, will occupy the space made vacant by its predecessor. The permanent are all larger than the deciduous (with one exception). They require a larger alveolar arch and jaw bone. Nature furnishes this by the slow process of enlargement, by interstitial growth, hastened and stimulated by the lateral pressure of the teeth as they work their way into place and afterwards. The first permanent tooth erupted is not an incisor, but a molar, about the sixth year—a time so early that parents are apt to regard it as temporary and fail to place upon it the great value it should command. The loss of *any* of the deciduous teeth prior to the time indicated by nature is sure to relieve the necessary pressure and hence stop interstitial growth, which will surely result in the production of a jaw too small or contracted to receive the increased number and size of the permanent teeth. The second dentition contains thirty two teeth, while the first has only twenty, and the premature extraction of any of the temporary teeth (especially the cuspids) cannot well result in other than harm to future esthetic effect.

Another great damage is often done by the injudicious extraction of one or more of the permanent teeth. No permanent tooth (no exception) should be extracted until this step is advised by an experienced and competent dental specialist, and our medical confrères would increase their value to their patients by frequent examination of the teeth, to see that caries is not making such inroads as to make extraction apparently necessary.

To extract any of the six anterior teeth especially in the upper jaw, is almost always a sin unpardonable. Delayed eruption of any

There are occasions, however, when the experienced, for good and cogent reasons, will deviate from this general rule. We dare not ignore the health and strength of the patient at the time of any proposed operation. While the ages considered most favorable, as a rule, are between thirteen and eighteen, this must be qualified, owing to the important changes which are going on in the entire economy about this time. Passing from childhood into manhood or into womanhood (especially the latter), the life forces are taxed to their utmost, the mental faculties are being severely strained from study, and, where physical culture is neglected, too often the nervous system is unduly exhausted. At such times full nutrition must be sustained, and must not be interfered with by weakening the system by lack of nourishment during an extensive operation. Unless the patient possesses vital powers of a high order, operations that would inflict pain should be postponed until a more favorable period. The loss of health would not be compensated for by any benefit conferred upon the dental organs. Operations performed at the proper time, with due judgment, will, however, often assist nature in maintaining a normal health status.

The question of sex is most important, for while it may not determine the question of desirability of correction, when it comes to necessity, harmony of features is much more important in the female. Man, after youth, has, in the hairy covering of the lip, a means of concealment, while woman is without this advantage. The necessity of correction, therefore, seems more imperative in woman than in man.

Another factor which must not be lost sight of is the power of appreciation. Correction of an irregularity is, at best, a difficult undertaking, frequently lacking in suitable pecuniary reward, and the lover of art must often depend upon appreciation for part of his compensation. Lack of intelligence or culture would result in lack of appreciation that would tend to a giving up when the operation was practically completed, or a failure to wear the retaining appliance, thus permitting failure to follow success.

When a certain form of irregularity has been transmitted through two or more generations, the impression is made and difficult to overcome, not always that the correction is much more difficult, but that the influence of perverted nature in the family type will tend to render it easier to preserve the advantage gained.

One of the advantages gained in correction, though not as to be pre-

the patient, is the improvement of occlusion. Much harm is sometimes done by the use of regulating appliances which change the articulation without improving it.

In conclusion, let us study this new field a little together in the future. As the operation is one dependent largely upon the absorption and reformation of alveolar tissue, and as new bone will form at almost any period of life, the range of years through which correction is possible is wide. As early as the eighth or as late as the thirty fifth year may be within bounds, though there are exceptions to both of these limits. The operation usually proves more slow and tedious after the maximum of density has been attained in the process, and the necessity for the alteration is less. Early consultations are imperative when any of the permanent teeth erupt inside or outside of the arch, or when their cutting edges form an angle with it. To neglect the condition or to postpone it only tends to its confirmation or aggravation. Dr Kingsley tells us 'As soon after eruption as it becomes certain that an irregular denture is inevitable, there is no longer justification for delay, and after that period every year increases the difficulties, both mechanical and pathological, and prejudices the stability of the dental apparatus.' Whether the operation should be delayed, should be left to the decision of the experienced, skillful, faithful specialist.

· BOOK REVIEWS.

A TREATISE ON NERVOUS AND MENTAL DISEASES By Landon Carter Gray, A M , M D Second edition, revised and enlarged, with 172 illustrations and three colored plates Philadelphia Lea Bros & Co 1895

The favorable reception accorded the first edition of Dr Gray's work has led to the preparation of this second edition A comparison of the two volumes shows that the advances in neurology in the last three years, while not startling or epoch-making, exhibit distinct progress In his anatomical introduction the author lays special stress on the discoveries of Golgi and Cajal and the influence they have exerted in establishing a better understanding of the intimate structure of the nerve centres

Each portion of this new edition bears the marks of careful revision, and five new chapters have been added, dealing with Dementia, Dementia Paranoides, Confusional Insanity, Delirium, and Massage The anatomical introduction has been entirely rewritten and greatly enlarged

In the preface the author reaffirms his belief that the chief office of the physician is to relieve suffering and cure disease He says "Believing most thoroughly in medicine as a practical science, I have endeavored to mould this work so as to equip its readers with the knowledge necessary to the recognition and the most efficacious treatment of the diseases embraced in its title The therapeutical sections were developed, with full detail, in the first edition, and they have been enlarged wherever advisable in the present issue In every case I have recommended only those procedures which have been tested by experience The word 'treatment' has been construed in the broadest sense to include not only medicinal and non-medicinal agents, but also those hygienic and dietetic measures which are often the physician's best reliance" A chapter is devoted to massage, but the author is not yet convinced that hydrotherapy, in its applications to nervous and mental disease, is practicable outside of a few large cities, or that it has more value than mere cleanliness We think that most neurologists will disagree with him here While hydrotherapy is impracticable outside of sanitarium or hospitals, when properly applied its range of usefulness in the functional neuroses is second to that of no other remedy

The first part of the work is closed with a concise chapter on Electricity and a description of batteries The chapter on Massage is too short to be of practical value, excepting as the range of usefulness of this remedy is indicated

Part Two opens with a chapter on Localization of Lesions in the Cerebrum, Cerebellum, and Spinal Cord While this is intended to be helpful to the beginner, we could not avoid thinking how difficult it would be for those without clinical experience to apply these lessons in practice The author is not, however, responsible for the difficulties of his subject the descriptions are as clear and accurate as they could be made Chapter Two deals with Motor and Sensory Symptoms, the methods and instruments used in testing them, and the investigation of the special senses Chapter Three deals with Neuralgia and Neuritis The next section deals with the Disorders of the Cerebro-spinal

Nervous System and the Neuroses Then follows a chapter on the **Nervous Diseases of Probably Microbic Origin** This includes tetanus, the treatment of which by serum the author somewhat summarily disposes of in the following words "The use of serum from immunized animals seemed at first of great promise but it has not proven successful and moreover there is great trouble in obtaining it promptly in case of need" Descriptions of tetany, hydrophobia and diphtheritic paralysis are included in this chapter The addition of a section dealing with certain nervous symptoms common to different diseases including vertigo, headache insomnia, and coma will be a great help to the beginner in neurology

The work closes with a description of mental disorders and a glossary

LECTURES ON APPENDICITIS AND NOTES ON OTHER SUBJECTS By Robert T Morris A M, M D With illustrations The Knickerbocker Press G P Putnam's Sons New York 1896

This 160-page monograph is beautifully printed on extra heavy paper and handsomely illustrated The substance of much that is said in its pages has already appeared in the transactions of various medical associations and in medical journals

The first 83 pages deal with appendicitis The first chapter is devoted to the preparation of surgeon and patient The author recommends a 1:2000 solution of bichloride of mercury for sterilizing the hands While he admits that this is not sufficiently concentrated to destroy *all of the bacteria* he says it has proved quite efficient in his practice The only irrigating solutions employed are physiological saline solution and hydric dioxide—the latter for septic cavities Aristol is said to be similar in its action to iodoform, but superior to it, as it adheres better to tissues is non toxic and smells better The author claims excellent results from his simple technique and gives a list of operations performed at the Ithaca City Hospital which includes 193 operations with a single death In Chapter Two we have a description of the normal appendix Chapter Three deals with the pathology and symptomatology of appendiceal inflammation and ulceration Chapter Four describes the author's method of operating and closes with a tabulated list of one hundred consecutive cases from his own practice He strongly recommends the limited incision $1\frac{1}{2}$ inches, in the interval operation without general infection or the formation of abscess

The remainder of the volume is devoted to the consideration of the following miscellaneous topics The Action of Various Solvents on Gall stones The Influence of Remains of the Embryonic Vitelline Duct in the Production of Moist Navels and of Eczematoid Inflammation about the Navel Malignant Islands at the Navel occurring simultaneously with Malignant Disease of the Abdominal and Pelvic Organs a Last resort Hernia Operation The Experimental Production of Ileal Intussusception with Carbonate of Sodium The Reason why Patients Recover from Tuberculosis of the Peritoneum The Prevention of Secondary Peritoneal Adhesions by an Aristol Film Another Method of Palpation of the Kidney Experiments germane to the subject of Abdominal Supporters after Laparotomy An Addition to McGuire's Operation for a Supra pubic Urethra, The Drainage Wick, Endoscopic Tubes for Direct Inspection of the Interior of the Bladder and Uterus The Action of Trypsin Pancreatic Extract, and Pepsin, upon Sloughs and Coagula The Removal of

Necrotic and Carious Bone with Hydrochloric Acid and Pepsin, Is Evolution Trying to Do Away with the Clitoris? The Mechanism and Anatomy of Subluxation of the Head of the Radius, Pott's Fracture, and the Fracture of the Fibula which follows Adduction of the Foot, The Dowel-pin in Dislocation of the Acromial End of the Clavicle, The Dowel-pin in Fracture of the Clavicle, Mallet-finger Two Cases of Conservative Surgery of the Arm, Skin-grafting from Blisters, Phelps's Hare-lip Operation in Two Steps, Distention of Fistulous Pipes with Plaster-of-paris to Facilitate their Removal, Prevention of Abortion by Removal of a Uterine Fibroid, Reduction of an Inverted Uterus by Incising the Constricting Ring Intra-abdominally, Hysterectomy for Placenta Previa, Ovarian Transplantation

A TREATISE ON APPENDICITIS By John B Deaver, M D , Surgeon to the German Hospital, Philadelphia, containing thirty-two full-page plates and other illustrations Pages 168 Philadelphia P Blakiston, Son & Co

This work adds another to the books on appendicitis which are now becoming so numerous It differs from the work of Talamon, who discusses pathology for the most part, and from that of Sonnenburg, who has made a thoughtful study of his own cases It resembles Fowler's work in that it systematically discusses the different parts of the subject

The author states that in writing this book he was prompted by the belief that the importance of this affection entitled it to a more thorough and exhaustive study than has heretofore been usually accorded it In the brief 168 pages utilized, so large a subject could not, however, be exhaustively treated, and the book can only be regarded as a rather free expression of the author's views, as modified by reading It is not to be considered as a calm, judicial summing up of professional knowledge and opinion But it will be useful as a convenient manual for the general practitioner and for the young surgeon ambitious to begin a study of this treacherous disease in order to be ready to hazard the criterion of the knife

Some of the author's statements deserve notice for their originality or for the force with which they are enunciated Thus he says "From experience in operating upon a number of cases in which the appendix invariably pointed south,¹ I am prepared to say that when pain is referred to the left side the appendix occupies the pelvis, also that when in these cases suppuration has taken place, resulting in a large pelvic collection, bilateral rigidity of the abdominal wall is always pronounced When I am asked to see a patient the diagnosis of whose ailment is not clear, with a history of the three cardinal symptoms, with the pain referred to the left rather than the right side, with a temperature denoting a hectic condition, and with bilateral rigidity of the abdominal walls, I am convinced that it is a case of suppurative appendicitis in which both the pus-collection and the appendix occupy the pelvis "

The question of prognosis is dismissed with two and a half pages of matter very inadequately covering the ground

The technique of operation, which he believes should be invariably performed, is well described, although surgeons are by no means agreed that even in the most skilled hands the appendix should always be removed

The reader is shocked, on glancing through the book, at the great number

¹ Parallel to the long axis of the body and downward

of gaudy circus-poster plates in colors suggestive rather of the ribbon-counter than of the tissues of the human body. Even the most carefully executed chromo-lithographs are really needed only in indicating the appearance of the diseased appendix.

ADHERENT PERICARDIUM By John F. H. Broadbent, M.D., M.R.C.P. New York Wm. Wood & Co.

This is a small monograph of 126 pages. The author chose this subject for special investigation because of the number of cases of adherent pericardium seen post mortem, and the comparative infrequency with which a diagnosis of this condition is made during life. Out of eighty-six cases from the records of St. Mary's Hospital, in which death was attributed to heart disease, the pericardium was found adherent in thirty-one. The comparative rarity with which the existence of adherent pericardium is diagnosed may be accounted for in many instances by the fact that it is not thought of. Especially is this the case when it is associated with valvular disease as the latter is supposed to account for the symptoms. There is too an absence of characteristic physical signs of this condition.

With this brief statement of the *raison d'être* of the monograph, the author passes to an historical description. This, if at all complete shows the meagreness of the literature on this important topic. The etiology of this condition is always found in an antecedent pericarditis. The condition may be universal or partial, and in its effect on the heart may cause dilatation, hypertrophy, or atrophy.

The question of diagnosis is naturally of the utmost importance. The writer gives as the most important signs *systolic recession of the site of the apex beat* also a *diastolic shock* and an *apex beat which does not alter with changes of position or deep inspiration and expiration*. Friedreich has observed systolic recession of the apex in a case of aortic stenosis.

The latter portion of the work is taken up with a summary of cases, the physical signs presented, and the post mortem findings. A reading of this part of the work is convincing as to the importance of this disorder in causing many obscure cases of disease in which diagnosis is not made. The author is silent as to the matter of treatment, from which we infer that little can be done in that direction.

THE STUDENTS' MEDICAL DICTIONARY Including All the Words and Phrases Generally Used in Medicine with their Proper Pronunciation and Definitions. By Geo. M. Gould A.M., M.D. Tenth edition rewritten and enlarged.

The tenth edition of Dr. Gould's Students' Dictionary is designed to take the place of the New Medical Dictionary and the Students Medical Dictionary. It contains 701 pages the size is convenient for the medical student, and in many respects it is a marked improvement on its predecessors. As compared with the larger dictionaries, the definitions have been shortened and many tables and groupings of systematized medical facts omitted. Notwithstanding this effort at compactness, room is found for forty-six tables among which are Arteries, Convulsions of Brain, Chemical Elements, Exanthemata, Ganglia, Metric System, Murmurs, Nerves, Nuclei, Poisons, Ptomaines, Râles, Reflexes, Sutures etc.

The reforms in spelling adopted by Dr Gould are adhered to throughout the book. An excellent system of pronunciation is employed, so that he who runs may read and also pronounce correctly. In view of the amazing confusion that has crept into the pronunciation of medical terms, this feature alone is sufficient to commend the work.

A COMPEND OF DISEASES OF CHILDREN Especially Adapted for the Use of Medical Students By Marcus P Hatfield, A M , M D Second edition Philadelphia P Blakiston, Son & Co 1896

The author informs us that this little work is founded upon Dr Ernst Kormann's excellent Compendium der Kinderkrankheiten, translated many years ago with the co-operation of Dr E J Doering, while they were fellow students at the university at Berlin.

It has the advantage of being somewhat fuller than the average of works of this kind. It is printed in comparatively small type, with narrow margins, and contains 215 pages together with a fairly complete index. While it is not expected that it will take the place of an extended treatise, it will certainly fulfill a want for the beginner in medicine. Though the evident aim is condensation, this is not carried to the extreme which is found in many works of the same class. If it were printed in larger type, with wider spacing, and on heavier paper, it would make an imposing volume of four or five hundred pages.

A COMPEND OF GYNECOLOGY By William H Wells, M D Philadelphia P Blakiston, Son & Co 1896

We have on former occasions expressed our opinion as to the general value of quiz compends and short cuts to knowledge. This work, however, is free from many of the defects which pertain to this class. Its 245 pages contain (owing to the condensed manner in which it is printed) much more matter than one would expect to find in such a work. There are 150 illustrations.

THE NON-HEREDITY OF INEBRIETY By Leslie E Keeley, M D , LL D Chicago L C Gregg & Co 1896

Under the foregoing title, in a small work of 349 pages, the author proceeds to deliver himself of a nearly complete system of philosophy, biology, chemistry, sociology, and medicine. If this work did not come from the *deus ex machina* of the gold-cure movement it would not be reviewed in these columns, but this disappearing fad has received so much attention from both the lay and medical public that we feel called upon to comment on this latest production of Dwight.

The first eight chapters bear no relation to the title of the book, nor indeed to the general subject of inebriety. While Dr Keeley may be supposed to speak with some authority on that subject, his particular views as to cosmical development are of little interest. He discusses in these eight chapters Medical Creeds and Development, The Modern Progress of Medical Science, Oxygen, Ozone, and Bacteria, Immunity from Poisons and Diseases, Social Relations of Poisons, and their Cure, Influence of Mind in Health and Disease, Sero-therapy, and Natural Selection in Relation to Immunity from Disease, Queer Medical Fads.

Dr Keeley answers the question *What is inebriety?* by dividing the users of alcohol into two classes—those with organic changes in the brain or blood vessels whom he calls chronic alcoholics and those without such changes whom he terms inebriates. The last are in the stage of cell necessity and the former in the stage of cell destruction. The nearest approach to a definition of inebriety is where he says: 'Beginning to drink is a vice, either on the part of the coming inebriate or those who may be responsible. It may simply be a mistake. Inebriety is itself a disease.'

The succeeding chapter is on the Evil of Intemperance in which the author speaks of the overmastering thirst and how the human being is between the devil and the deep sea: if he drinks water he is exposed to typhoid and malaria, if whiskey, he will contract inebriety. He next finds that alcohol is a food, but in small quantities is a stimulant.

We have always supposed that part of the confession of faith at Dwight was that inebriety was not hereditary and we were correspondingly surprised to find in a work on the non heredity of inebriety the following: 'There is, however a class of moderate drinkers and there is a method of making them. The method is not by education, by tears, protests by prayers, by control of the will. The descendants of inebriates may be moderate drinkers, but none others can be. No nation can adopt alcohol with its necessary inebriety without the operation of the law of natural selection. When a nation proceeds to drink poison, the law of natural selection proceeds by its own method to rescue from the gutter a class of moderate drinkers. The operation of the law is as follows: Generation after generation are inebriates, because drinking causes inebriety. But as the drinking proceeds and the generations are born, nature creates a tolerance to the poison. In time there will arrive a generation who can drink alcohol moderately without causing drunkenness or a craving, because heredity has transmitted to them a certain degree of tolerance to the poison of alcohol. There is no other method of producing a class or a race or a nation of people who can drink alcohol moderately.'

If any deduction is to be drawn from the foregoing it is that moderate drinking is hereditary but hard drinking is not.

It is not necessary to continue the discussion of the remaining portion of the book. It is sufficient to say that it is on a par with that which has already received our attention. The author gives evidence on every page that he has no knowledge regarding nervous and mental diseases and that he has made very little progress in general medical science. Even the disorder to which he claims to devote his exclusive attention he does not understand, nor is he familiar with its literature.

PROGRESS OF MEDICAL SCIENCE.

MEDICINE

UNDER THE CHARGE OF JAMES B. HERRICK, A.B., M.D.,
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Hospital, Chicago

The Blood in General Paralysis.—

Capps, in the *American Journal of the Medical Sciences*, June, 1896, has an interesting and scientific article on the condition of the blood in general paralysis. He not only cites the work done by others in this direction, but by tables, charts and histories shows the results of his own thorough investigation of the subject. The conclusions he reaches are as follows:

General paralysis. 1 The hemoglobin and red corpuscles are always diminished. 2 The specific gravity falls slightly below the normal. 3 Most cases show a slight leucocytosis, amounting on an average to about 22 per cent above the normal. Early cases may have no leucocytosis whatever. 4 In the differential count a decrease is found in the lymphocytes along with a marked increase in the large mononuclear cells. The eosinophiles in a few cases are very numerous.

Convulsions and apoplectic attacks. 1 The red corpuscles and hemoglobin are usually increased at the time of a convulsion. During an apoplectic attack of long duration they are both somewhat diminished. 2 The specific gravity is variable, sometimes increasing, sometimes diminishing, at the time of an attack. 3 There is a leucocytosis after convulsions and apoplectic attacks which is as sudden as it is usually pronounced. It certainly does not appear until within a very short time preceding the convulsion, probably not before the latter actually takes place. 4 The degree of leucocytosis and the period of its continuance, as a rule, vary directly with the length and severity of the attack. 5 In the production of the leucocytosis the large mononuclear cells are increased relatively more than any other variety. 6 The fact that after convulsions and apoplectic attacks in general paralysis there is not only an increase in the number of white cells, but a change in their character, as shown by the differential count, and at times abnormal cells appear, is an argument against the theory that leucocytosis is merely a change in the distribution of the white corpuscles.

Persistent Albuminuria In a Healthy Individual —

M de Crésantignes (*Journal de Médecine de Paris*, 1896, p 125) reports a case of intense, continuous albuminuria of seven years' duration in an apparently healthy man, 67 years of age who, seven years before, because of a little disturbance of appetite, had consulted a physician, of whom he learned that his urine contained both sugar and albumin. There was no hereditary taint, no previous illness, no alcoholism or syphilis, that could in any way account for the urinary findings. The most careful examination failed to reveal any lesion in any organ. The lungs, the heart, the arteries—in fact, all the organs—seemed to be in perfect condition. At no time was there any edema. At no time during the seven years was there the slightest evidence of uremia. The quantity of urine for twenty four hours varied during six years, being on an average a little over two liters. The urea varied with the amount of urine. The uric acid was practically normal. Sugar was frequently found, though at times it was absent, the amount for twenty four hours being generally from 15 to 40 grammes. Albumin was found at every examination that was made during seven years. The examinations in the later years showed, in general, a little larger amount than those of the first two years, the average being two grammes. As a rule, the greater the amount of urine, the greater was the amount of albumin. No influence whatever could be traced to food, to digestive disturbance, or to muscular action. Examination with the microscope repeatedly revealed a few granular or hyaline casts.

The interpretation of the case must be somewhat doubtful. Is it to be regarded as a disturbance of nutrition modifying the albumin of the blood, rendering it more diffusible, and allowing it to escape from a non diseased kidney, or, on the contrary, is it to be looked upon as due to a renal lesion?

In closing, M de Crésantignes quotes from Professor Dieulafoy, who examined the patient, and who says he does not look upon the case as one of Bright's disease, but as a sort of diabetic albuminuria which can be regarded as an exaggeration of the phenomena that we know as "physiological albuminuria."

Diphtheria or Septic Erythema?—

In the *Centralblatt für Innere Medizin*, Auerbach describes a case of diphtheria in which, after the injection of 1000 units of diphtheria antitoxin, the local process did not disappear, but an erythema nodosum was excited that lasted four weeks and caused

periosteal as well as joint inflammation Dr F Jessen, in a subsequent number of the same magazine, takes exception to the diagnosis of diphtheria, on the ground of lack of bacteriological examination as well as because of his clinical experience in a somewhat similar case

Dr Jessen's patient was a man 30 years of age, who was taken with pains in the joints, general malaise, and sore throat The temperature rose to 102.2° , there was swelling of the neck, and the tonsils were covered with a dirty-greenish exudate Three days later, on various parts of the body there appeared an erythema, somewhat similar to erythema nodosum, but which Jessen calls an erythema papulatum At the same time the patient suffered from severe pains in the joints The illness lasted eight days The patient made a recovery, but was greatly weakened and emaciated The urine was always free from albumin, and no organic disease of any internal organ could be recognized The bacteriological examination of the throat revealed the staphylococcus *aureus*, and the streptococcus, in pure culture Examinations of the blood, however, were fruitless The author, therefore, believes not only that Auerbach's case was not one of diphtheria, but as well that the erythema was in no way connected with the injection of the anti-toxin He regards the disease, on the contrary, as a septic condition not diphtheritic, and not rheumatoid

One is reminded in this connection of the somewhat similar joint pains and throat manifestations in some cases of purpura The relation between the purpuras and the erythemas is a most interesting one

Rupture of the Heart —

Kouskoff (*La Presse Médicale*, March 18, 1896) reports a rupture of the heart, with autopsy The patient before death had been complaining, for about ten days, of symptoms resembling those of epidemic influenza He had but slight fever, some cough with bloody sputum, some blood in the stools Following close upon a catheterization came faintness and sudden death

The autopsy, made fourteen hours later, revealed a rupture of the anterior wall of the left ventricle There had been, owing to the marked aortic sclerosis, thrombus formation A detached portion of this thrombus had plugged the coronary artery, resulting in *myomalacia cordis*, with cardiac enlargement, and ultimate rupture at the weakened spot

Kouskoff has seen rupture of the heart but three times in eight thousand autopsies

Lumbricosis Resembling Typhoid Fever —

A Chauffard (*La Semaine Médicale*, Nov 27, 1895) reports an interesting and somewhat rare case of a man who was admitted to the hospital with fever, splenic tumor, nervous disturbances, nose-bleed, ileo cecal gurgling, and a general appearance resembling typhoid fever. A preliminary dose of calomel was given, and a lumbricoid worm was expelled. Later, a similar worm was vomited. Under vigorous treatment, altogether thirty nine of these parasites were gotten rid of. Complete recovery followed. The author seems to exclude quite positively the existence of typhoid fever, and looks upon the case as one of pure lumbricosis.

SURGERY

UNDER THE CHARGE OF WELLER VAN HOOK, A.B. M.D.

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Chicago.

Human Actinomycosis —

Dr Josef Jurinka contributes to the *Mittheilungen aus den Grenzgebieten der Medizin und Chirurgie*, vol 1, heft 2, an interesting article from the surgical clinic of Professor Woelfler, of Prague, on the conservative treatment of human actinomycosis. After reviewing the various methods of treatment hitherto adopted by different surgeons, such as the injection of sublimate solution into the actinomycotic tumors combined with filling up of the fistulæ with a sublimate mixture (Albert), injections of tuberculin (Billroth and Von Eiselsberg), of carbolyzed glycerin and methyl violet (Raffa), the introduction of silver nitrate sticks (Koettwitz), electrolysis (Gautier), and, finally, operative procedures, he discusses the value of iodide of potassium as a specific.

It is not yet decided whether Thomassen of Utrecht or Dupont of Bordeaux is the discoverer of this specific action. At any rate, a large number of investigators, among them Ostertag and Nocard, have applied it in veterinary practice. The doses given by the veterinarians were rather high—five to ten grammes a day—but were well borne, and were as a rule successful in bringing about recovery even in severe cases of jaw, skin and tongue disease in cattle, sometimes in as short a space of time as two to four weeks.

Van Ietersen, of Leyden, in 1892, recommended the use of the drug in the therapy of human actinomycosis, and it has been thus used successfully by observers in the chief European countries, so

that the author is able to collect sixteen cases from the literature. Daily doses of one to two grammes were used, with resulting diminution of secretion and of pain, very quickly followed by rapid decrease in the size of the tumor, and finally closure of the fistulæ with full contraction of the lesion. Jurinka himself reports two cases, one of severe jaw actinomycosis and one of actinomycotic perityphlitis, cured by the use of iodide of potassium. He performed a number of experiments with cultures of the micro-organism, from which he concludes that the remedy does not destroy the actinomyces, but hinders its development and reproduction in the body. Professor Woelfler in a fourth case reports great improvement, with anticipated entire recovery, the case being still under observation.

[A case under observation by the editor of this Department some three years ago, in which he had performed resection of half the lower jaw after several preliminary and less serious procedures, was not benefited in the least by the use of considerable quantities of potassium iodide, the patient progressively grew worse, and died of exhaustion from suppuration.]

Perforated Duodenal Ulcer —

Prof. A. Landerer and Dr. Gluecksmann have a paper in the *Mittheilungen aus den Grenzgebieten der Medizin und Chirurgie*, bd 1, heft 2, upon the operative cure of a case of perforated duodenal ulcer, with remarks on duodenal surgery. The authors discuss the difficulties in the way of recognition of the presence of duodenal ulcer, but call attention to the fact that in this disease hemorrhage is likely to be observed with the passages from the bowel, while in stomach ulcer the blood is usually vomited, besides this, gastric ulcers are chiefly observed in anemic women, while duodenal ulcers occur more frequently in strong men.

The case was that of a man who for ten or fifteen years had had pain in the region of the stomach. Vomiting of food and passages of blood in the stools had occurred at frequent intervals. While the patient was under treatment in the hospital for a supposed ulcer of the stomach, he was suddenly seized one morning with violent pain under the right costal arch. The pains extended into the abdomen, and a sensation of distention together with painful belching was experienced. A diagnosis of perforation was made, and laparotomy was performed. No perforation could be found in the anterior wall of the stomach, and an incision was made through the omentum to examine the posterior wall. It was then noticed that, although no perforation was manifest here, the duodenum was

collapsed At the same time a quantity of dark coffee ground like material came up from the region of the duodenum, which, together with the collapse of that bowel, made perforation a certainty

The duodenum was packed about with gauze, the stomach, omentum and transverse colon were so fastened together by stitches as to shut off the free peritoneal cavity, and a tubular drain was carried down to the intestine Although the patient was apparently almost moribund, the administration of camphor injections and salt water infusion tided him over and recovery followed

This is the only case, the authors believe, in the literature

Tuberculosis of Tonsils —

Dr Hans Ruge, an assistant in Professor Gerhardt's clinic in Berlin, publishes an article in *Virchow's Archiv*, bd cxliv, heft 3, on "Tuberculosis of the Tonsils, from a Clinical Point of View" He became interested in this study from the examination of a case in which the tonsil was enlarged to the size of a hen's egg, in a patient suffering from Pott's disease in the cervical region Careful microscopical examination disclosed tubercles and tubercle bacilli, so there could be no doubt that tuberculosis was present He found among eighteen other cases of tonsillar disease that six were undoubtedly tuberculous, with pronounced histological alteration and tubercle bacilli, in the remaining twelve, the negative findings were supported by the fact that the tonsils were almost completely sectioned and studied after careful staining He concludes that the tonsils are frequently the seat of tuberculosis, and that the nature of the disease is almost always not to be diagnosticated until after the extirpation of the tonsil itself He believes the infection of the tonsils may occur by way of the blood, the lymph, the sputum, the inspired air, or with the food

The relation of tuberculosis of the tonsils to general tuberculosis, and especially to tuberculosis of the cervical lymphatic glands, he regards as of prime importance, but does not go into the question in detail

Stomach Diverticulum from Gastric Ulcer —

Professor Kolaczek, of Breslau, contributes to *Mittheilungen aus den Grenzgebieten der Medizin und Chirurgie* bd 1, heft 2, an article on a case of stomach diverticulum produced by a gastric ulcer, the resulting tumefaction simulating a neoplasm The patient, 45 years old, unmarried, had for about three years noticed a tumefaction in the region of the stomach, since 1890 she had been in somewhat

which was normal and could not have had anything to do with the formation of the process

Case 3—A woman with process closely resembling that in *Case 2* The gall-bladder was not seen, if attached, it was situated behind

Case 4—Mrs F—, the wife of a physician, was never robust Her menses were painful and often profuse She became ill in January, 1895 The flow was so free that it was thought she had possibly miscarried In a few days the temperature rose slightly, and tenderness and slight fullness were found to the right and behind the uterus, down close to the cervix There was not

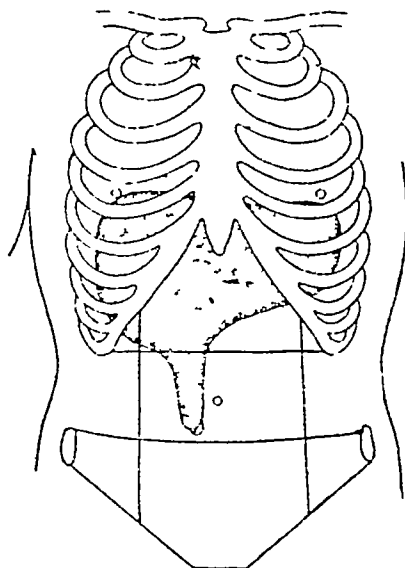


FIG 2

much change in the symptoms for some days, then she improved, the tenderness and fullness gradually disappearing with the discharge of a little pus beside the cervix, and the temperature becoming normal But after a few days the fever returned again, nothing could be found in the pelvis to account for it The urine had been normal In the right lumbar region there was some tenderness, and a fairly well defined mass could be felt extending down nearly to the crest of the ilium A few days later the urine contained some albumin, with a few pus-cells The temperature remained variable, but not high Her condition was very unsatisfactory and caused much anxiety Two days later there was a copious discharge of pus and blood in the urine—many clots and yellowish-black masses of thick pus and blood, due undoubtedly to the discharge of a fairly large abscess into the urinary tract. The mass in the right lumbar region remained unaltered There was tenderness along the course of the ureter, and possibly some thickening No signs of abscess in the pelvis The urine became increasingly clear daily, but the amount of the albumin remained high, apparently more than would be accounted for by the amount of pus present. The inevitable conclusion seemed to be that there was an abscess in connection with the right kidney, and that the mass situated there resulted from it, yet its mobility and unaltered size and shape seemed to negative that opinion As improvement was not satisfactory, an operation for the purpose of

exploring the mass was done by Drs I H Cameron Uzziel Ogden and Alexander Primrose. When exposed the mass was found to consist of a tongue-like lobe of the liver (Fig 3), behind which lay the right kidney, which was to all appearance healthy. The situation of the abscess was not ascertained but was probably somewhere about the pelvic brim. There was gradual improvement after the operation, and in a month the urine was normal. Her health improved very slowly, and even yet is not very satisfactory.

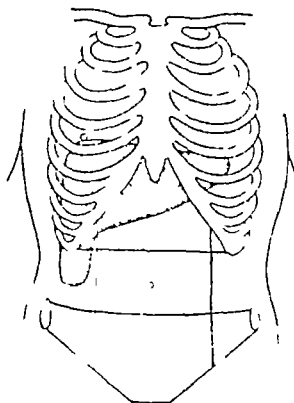


FIG 3.

Case 5 —Babe G— aged eleven months the child of a physician was taken ill on Wednesday with disturbed digestion. Improved, but became ill again on Saturday and grew rapidly worse. The temperature was high and bowels could not be made to move even with strong purgatives. The child was in great distress, had vomited, was very pallid, tossing about and crying out and very thirsty, pulse rapid and weak, abdomen not much distended. There was no specially tender part. A small motion of green mucus with a little fecal matter was found in the naphkin. The patient was straining a good deal from time to time. Examination of the abdomen revealed nothing unusual, except a small elongated mass in the region of the ascending colon extending from the costal margin down nearly to the iliac crest moving with respiration and firm and dull on percussion. The abdomen was everywhere else tympanic. The possibility of an intussusception occurred to us although the absence of blood, the very slight amount of mucus in the stool and the slight tenesmus seemed to negative that opinion. As there appeared to be no other hope of relief, an operation was advised. Dr George A Peters operated and the finger like mass was found to be the edge of an accessory lobe of the liver (Fig 4). The abdominal organs appeared healthy. There was no exudation in the peritoneal cavity. The child seemed none the worse for the examination. Death occurred next day and it was suggested that the case was one of hemorrhagic pancreatitis, a diagnosis that was confirmed by the autopsy.

Case 6 —Wm H— aged 36 a builder consulted me in October 1895,

Arrested or Repaired Dissecting Aneurisms.—

J G Adam (Montreal Medical Journal, June, 1896) says that, among the diverse forms of aneurisms, one of the rarest is that termed first by Laennec the "aneurysma dissecans," a form in which, the inner walls of the aorta or one of the large arteries having ruptured, the outer coats remain intact, the blood dissecting a passage between the layers of the middle coat for, it may be, long distances. There are altogether about two hundred cases of this condition that he can find recorded, and in by far the larger number of these death evidently occurred either immediately or within a few hours, most frequently by the blood forcing its way into the ascending aorta and thence into the pericardial sac. Only in a small percentage of the cases was compensation established and the dissecting channel repaired either by the development of secondary openings into the vessel or by the organization of the blood, which, after escaping between the walls, became clotted. There are singularly few cases on record of this last mode of repair, it is more common to find that, where death is not the direct result of the condition, the dissecting channel gains an endothelium, a channel being formed, opening above and below into the aorta or one of the larger arteries, and resembling the primitive vessel so closely that it is not to be wondered at that some of the earlier cases of the condition were described as congenital abnormalities.

How rare is this condition may be inferred from the fact that it did not gain recognition until this century. Peacock, in 1863, was only able to collect eight cases, and Bostrom in 1885 only seventeen, although it ought to be added that the latter observer made a somewhat arbitrary classification and purposely omitted two or three cases which from their course and characters Adam feels bound to include with the others in one group.

Aneurisms which show evidence of progressing repair must be considered along with those in which repair is complete, or, in other words, to employ Bostrom's terminology, "healing" aneurisms must be classified along with "healed." By this means one is enabled to divide dissecting aneurisms into two clearly defined classes: those in which the dissection is progressive and is *per se* the cause of death, and those in which dissection of the arterial walls has been arrested and has not directly led to the fatal event.

The author describes two cases. The first was that of a laborer 64 years of age. Not to enter too fully into the symptoms presented in this case, it may briefly be stated that he presented evidences of arterio-sclerosis, with increased vascular tension, enlarged heart with

weak sounds, soft apical systolic murmur transmitted to the left axilla, a fugitive diastolic murmur, and reduplication of the second pulmonary sound. There was poor expansion of the chest, with dullness over the left side, and absence of breath sounds, expiration was prolonged. The abdomen was everywhere so tender on pressure, more especially over the epigastrium and in the left hypochondrium, that satisfactory palpation was impossible. Besides the dissecting aneurism and the associated arterial changes, the necropsy revealed well marked hypertrophy and dilatation of the heart, emphysema and bronchitis with edema of the lungs, serous pleurisy of the right chest, and adhesive pleurisy of the left side. The kidneys were sclerotic, of the small red granular type. The aorta presented an extreme condition of nodose arterio sclerosis, the hypertrophy of the intima being very considerable and of a hyaline fibroid type rather than calcareous. Indeed, there was only one calcareous patch, two centimeters across, at the beginning of the descending aorta, and an atheromatous ulcer of small size at the origin of the right renal artery. The fibroid hypertrophy was especially thick around the origin of the innominate, left subclavian and carotid, and there was great thickening also around the offset of the celiac axis, associated here with not a little deformity of the aorta. Three and a quarter centimeters above the celiac axis was situated a large transverse rupture of the inner walls. The rupture was situated, therefore, above the diaphragm near to the point where the aorta begins the oblique course through that septum, the point corresponding to the body of the tenth dorsal vertebra. The rupture was 4.5 centimeters across, and began 5 millimeters to the left of the middle line behind, extending round the right side of the aorta to the middle line in front. The breadth of the aorta immediately above the rupture was 6.25 centimeters. This rupture, which was unassociated with any evidence of atheromatous ulceration, gave entrance into a long channel, extending both upwards and downwards. The upper channel was filled below with fairly firm adherent reddish gray clot, which gave way to pale discolored fibrin about the middle of the thoracic aorta, and from here a channel, containing thin layers of fibrin and almost obliterated, continued upwards along the right side of the aorta as far as the middle part of the arch. In a downward direction the channel was relatively free from blood-clot, what there was being soft, loose, and recent. This channel was large, roughly triangular, and smooth walled, passing along posteriorly somewhat to the right, and at the bifurcation it also bifurcated, passing along the common iliacs, and from them along the external iliacs. On the

right side it opened again into the lumen of the right external iliac, close to its lower end, 4 3 centimeters below the bifurcation of the common iliac, 9 5 centimeters from the bifurcation of the aorta. On the left side it continued still further, opening in the first portion of the femoral artery, 7 centimeters below the bifurcation of the left common iliac, 14 5 centimeters from the aortic bifurcation. The channel ran along the inner aspect of the common iliac, becoming posterior below. Apart from the primary and terminal openings, there was but one communication of any size between the aorta and the sac. This was around the origin of the right renal artery, where there were still the remains of an atheromatous ulcer, indicating the means whereby the communication had become established.

The second case was a woman aged 43 years, who entered the hospital August 15, 1892, complaining of abdominal pain, vomiting, anorexia, and progressive emaciation. In 1888 she had suffered from rheumatism, and two years later began to suffer from dyspepsia with palpitations and some loss of flesh. Six weeks before admission there developed an aching pain across the abdomen which became progressively worse, it was not increased by eating, nor was it relieved by vomiting. With the development of the abdominal pain she first noticed the presence of a lump in the abdomen, above the navel, this was tender on pressure and had not increased in size since it was first noticed. For the last two weeks before admission she had pain across the back. The tumor above mentioned was situated a hand's-breadth above the navel and a little to the left of the middle line. It was the size of a small hen's egg, not very tender, pulsative, movable laterally but not vertically. An exploratory laparotomy was performed, but no attempt was made to relieve the condition. The autopsy showed aneurism of the superior mesenteric artery, with rupture into the peritoneal cavity, aneurism of the right subclavian, dissecting aneurism of the abdominal aorta, hypertrophy of the left ventricle, with chronic interstitial myocarditis, early interstitial nephritis. The orifice of the superior mesenteric artery was normal, about an inch from the orifice it became dilated, forming a large mass behind the mesentery, pancreas, and third part of the duodenum. These structures assisted to form the walls of a false aneurism which was filled with a mass of recently clotted blood two inches thick. The primary, and in this case the only, orifice of the dissecting aneurism, was situated 1 8 centimeters above the origin of the celiac axis. It was in the form of a transverse rent, 3 centimeters across, with sharp, well defined edges, showing no definite marks of advanced sclerotic change save towards the right

border of the lower edge, where the nodose sclerotic change at the border of the sacculated abdominal aneurism continued into the edge, causing it to be somewhat thickened and rounded off. This old rent led into the dissecting sac, whose walls in the immediate neighborhood of the opening were peculiarly smooth and glistening and undistinguishable in texture from the interior of the aorta proper. The sac passed at most 2 centimeters in a downward direction, but upwards it continued as a channel 2.5 centimeters across, running within the arterial coats along the right and posterior aspect of the vessel, and gradually narrowing. It passed almost to the arch, and there ended in a rounded, smooth-walled cul-de-sac at the level of the bifurcation of the trachea. The walls of this upper portion, save in the immediate neighborhood of the cul-de-sac, were not so smooth as were those in the neighborhood of the opening; they were slightly ragged, but on section so thick that the roughness evidently was due not to shreds of ruptured media, but to irregular organizations of a fibrinous layer lining the sac. The cavity was filled with old mixed blood clot, fairly firm, but removable without difficulty.

BACTERIOLOGY

UNDER THE CHARGE OF GEORGE H. WEAVER, M.D.

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Alcohol as a Disinfectant for the Hands —

Observations have at various times been made upon the antiseptic properties of alcohol, and its undoubted property of rendering the hands free from bacteria has been explained in different ways. Ahlfeld (*Deutsche Med. Woch.*, 1895, No. 51, and 1896, No. 6) has reported extensive experiments upon this subject. He found that the percentage of sterile hands after only washing in soap and warm water with a brush, the nails being cleaned before and during the washing, varied markedly with the practice of the individuals. In a series of examinations made from the hands of midwifery students, the sterile hands increased from 2.7 per cent in the first series of seventy-three examinations to 25 per cent in the third. His own hands were examined after cleaning in this way, twenty-two times, and were found sterile eighteen times. The results where soap and brush were used, he found to depend upon two factors—the character of the skin and nails, and the intelligence and energy exercised. A hand with smooth skin, without many or long

hairs, with nails so short that the end of the wooden probe cannot pass beneath them, and nail-folds closely attached to the nail, is easy to render sterile

Having determined the effect of soap and water alone, he conducted a series of examinations upon hands which were prepared as follows. The nails were cut and cleaned without water, the hands washed with soap and water, without brush, for three minutes, rubbed with flannel in alcohol for three minutes, and immersed in sterile water five minutes. In fifty-one out of fifty-two examinations the fingers were found to be sterile after this treatment. The author found his hands to be sterile when treated in this way after coming in contact with putrid carcinomata, necrotic fibromata, pus, etc., in thirty-seven instances. Where the sterilization is to be conducted upon rough hands, or where virulent pathogenic germs are known to be present, he prolongs the time of washing in soap and water and in 96-per-cent alcohol to five minutes in each case, and the nails are cleaned before and during the washing.

The author makes an effort to show in what way the alcohol causes the hands to become sterile. That it is not simply by removing the fat from the skin was shown by replacing the alcohol by ether, when the ratio of sterile fingers was reduced to 22 per cent. He shows that various bacteria are readily killed by alcohol when they are in a moist condition, but are much more resistant when dry, hence the need of thorough use of soap and water before applying the alcohol.

Charles Ludham-Green (*Deutsche Med Woch*, 1896, No 23) seems to have obtained results which completely overthrow those of Ahlfeld. He found that washing for five to ten minutes, followed by the application of alcohol for five minutes, usually failed to render the hands sterile, and that when the hands were previously infected with the bacillus *pyocyaneus* or the potato bacillus the same procedure only gave sterile results in one out of nineteen cases. The observations of Green are too few in number to be used in drawing conclusions, but seem to indicate that if the washing with soap and water as well as with alcohol is not carried out with the thoroughness insisted upon by Ahlfeld the results will be disappointing.

The Accessory Nasal Cavities in Diphtheria, Measles, and Scarlatina —

M. Wolff (*Ztschr für Hygiene und Infect*, bd xix, 1895, pp 225-262) has made bacteriological examinations of the accessory cavities of the nose in twenty-two cases of diphtheria. In all there

were disease changes in the antrum of Highmore. In seven cases only slight changes were observed, there being mucous and mucopurulent secretion without inflammatory changes in the mucous membrane itself. In the remaining fifteen cases there were more marked changes, the mucous membrane being in a condition of inflammatory edema, with hemorrhages in places. The diphtheria bacillus was confined to the cases with marked changes, and was absent in three out of the fifteen. In these three the diplococcus *lancoletus* was present twice, and the streptococcus *pyogenes* with the staphylococcus *pyogenes aureus* in one. The diphtheria bacilli were found alone in two cases only; twice they were associated with the diplococcus *lancoletus*, once with the streptococcus, once with both of these, twice with the staphylococcus *pyogenes aureus*, three times with the streptococcus and the staphylococcus *pyogenes aureus*.

The sphenoidal sinuses were not developed in fifteen cases. In the other seven cases there was more or less inflammatory change. In six of these the diphtheria bacillus was present, three times alone.

The frontal sinus, in the only case in which it was examined, was the seat of severe edematous swelling, and contained the diphtheria bacillus and the staphylococcus *pyogenes aureus*.

The tympanic cavity was sterile in seven cases. In the other fifteen, diphtheria bacilli were found six times, once only alone, in the others associated with other bacteria.

The age of the subject did not influence the severity of the disease in the accessory cavities.

Five cases of measles and two cases of scarlatina were also examined. Various bacteria were found, including the diplococcus *lancoletus*, streptococci, staphylococci, and the bacillus *pyocyaneus*. Severe inflammatory changes were found like those in the cases of diphtheria.

THERAPEUTICS

UNDER THE CHARGE OF N. S. DAVIS, JR., A.M. M.D.

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The Treatment of Typhoid Fever by Cold Applied to the Abdomen.—

A. J. Downes (*Therapeutic Gazette*, March, 1896) recommends the application of cold to the abdomen by means of ice-bags, over the lower coils of the ileum and the beginning of the colon, for the longest periods and with the shortest intermissions consistent with

safety, the object being to obtain as low and constant a temperature as possible near the lesions and the infecting process. He thinks this might be called the systematic continued intermittent application of cold. The continuous use of the ice-bags causes congestion and in time sloughing of the skin, hence the necessity for regulated intermissions.

In six cases ice-bags were applied fifty-five minutes out of every hour for from seven to ten days. The intermission was too short, discoloration of the skin in all, and necrosis of the skin in two, occurred. Periods of forty-five minutes, with intermissions of fifteen minutes, were found efficient, but he has come to the conclusion that applications of an hour and a half with half-hour intermissions is the best rule to follow, the time on and off making two hours. Should the temperature rise to or above 103° the ice may be allowed to remain on an hour and three-quarters, the time off being reduced to fifteen minutes. In temperatures above 102° , sponging with ice-water and alcohol during the intermission is an essential part of the system, even in moderate fever two spongings daily should be given.

By this method he claims to inhibit the lesions to some extent, the arterial supply to the bowel being lessened by the stimulating action of cold on the arterioles. A similar effect on the efferent lymphatic vessels from the lesions is noted, their calibre being diminished, and less toxin is absorbed.

There is an anti-bacillary or anti-infectious influence. Prudden has shown that freezing of media containing the bacilli only partly destroys them. Another experiment of his, however, proves that intermittent freezing and thawing continued but a few times (five) completely destroys them. The effect is more pronounced if at the freezing temperature the liquid state is preserved—moist cold. There is an analogy between the effect of freezing bacilli and then thawing them out, and the effect of the intermittent application of cold, as here advocated, over the intestine containing the typhoid bacilli. True, we cannot lower the temperature of the bowel to the freezing-point, but we can reduce it to or below 60° F, and certainly regular reductions to this point with brief elevations to the blood-heat should materially retard the culture process in the bowel. The typhoid bacillus grows at any temperature between 68° F and 100° F, but best at the latter point. What effect would result in a freshly inoculated tube of typhoid bacilli, were it subjected to alternations between body-heat and cold? Undoubtedly the process would be inhibited and less toxin (and that weaker) would develop.

He claims a physical antithermic influence. It is practically cold in contact with hot coils, for the innumerable vessels of the portal circuit may be so considered. Cool blood passes through the liver, and emerges still cool from the hepatic vein, the inferior vena cava is near enough, especially when the abdomen becomes flat, as it does in a short time, to be influenced, hence the blood enters the right side of the heart and lungs more constantly cool than by any other method. This undoubtedly explains the rapid subsidence of the initial and early bronchial symptoms.

By this method, since February, 1895, he has treated eleven cases. Four received no medicine until after the subsidence of fever. Six received no medicine that could possibly have had much influence on the course of the disease. Not one dose of an antipyretic was given. A little calomel and small doses of a mineral acid were the drugs used. The eleventh case, in addition to the ice-bag, was given the quinine chloride mixture of Yeo. The number of days ice was applied in the cases was as follows: Case 1, twenty-one days, including recrudescence, Case 2, six days, Case 3, twenty-four days, including recrudescence, Case 4, forty-two hours, Case 5, twenty-one days, Case 6, seventeen days, Case 7, nineteen days, including recrudescence, Case 8, six days, Case 9, nine days, Case 10, two days, Case 11, ten days. Ice was removed in all cases when a temperature of 99° or under was reached.

Bone-marrow In Pernicious Anemia —

G. B. Hunt (*Lancet* February, 1896) has treated three cases in which the red marrow did not have the slightest effect. In one of these cases rapid improvement was noted as soon as the patient was placed on arsenic. From a review of the literature he comes to the conclusion that bone marrow should not be given unless arsenic has failed.

One reason for the different results obtained in different cases may be the well known difficulty in diagnosis in this disease, as a case may be universally supposed to be one of pernicious anemia till death occurs, when some deep-seated disease, especially affecting the stomach or intestines may be discovered which has caused the anemia. Another may arise from the differences in the bone marrow. If it is obtained direct from the butcher it is almost certain to be white marrow from the shafts of the long bones, consisting of little else than fat—the red marrow, which is a blood-producing organ, occurring only in the ribs and cancellous ends of the bones and requiring to be extracted from the bony meshwork.

in which it lies, so that in all reported cases the source from which the marrow has been obtained should be particularly stated

It is difficult to explain in what way any good effect could be produced by the administration of bone-marrow in pernicious anemia. Two suggestions might be made, corresponding to the two theories that the changes in the bone-marrow found post-mortem are either the result or the cause of the disease. If the first view is taken, that the change in the marrow is due to its over-action in its endeavor to manufacture new red corpuscles, it might be supposed that the marrow which is administered might either help to form new corpuscles or else contain some substance which would act as a stimulant to the blood-forming organs. It would, however, be very difficult to believe that the marrow of an animal taken into the stomach and digested could form new corpuscles, and as the only tissue which is supposed to form new red corpuscles in the adult—*z e*, the red marrow—is already greatly increased, any substance greatly stimulating this tissue to increased action would be useless. If the other view is taken, that the changes in the bone-marrow are in some way the cause of the disease, it might be thought that the administration of marrow extract might supply some deficiency, in the same way as the administration of thyroid-gland extract supplies some deficiency in myxedema. But it is contrary to the general opinion to suppose that the changes in the marrow are the cause of the disease in the same way that the atrophy of the thyroid gland is the supposed cause of the myxedema. Supposing it is the cause, the red marrow in these cases is hypertrophied, not atrophied, so that there is no deficiency which can be compensated by giving the extract.

Absorption of Methyl Salicylate by the Healthy Skin —

Linosier and Lannois (*Medical Week*, March, 1896) have shown that the healthy skin is capable of absorbing certain substances in much larger doses than are usually employed for therapeutic purposes. They found, for instance, upwards of three grammes of guaiacol in the urine passed within twenty-four hours by persons in whom this substance had been applied to the skin.

They have since experimented with methyl salicylate, which constitutes 90 per cent of the essence of wintergreen. According to Nothnagel and Rossbach, when taken by the mouth this salt possesses all the properties of sodium salicylate in the treatment of acute rheumatism. Moreover, it is converted into sodium salicylate in the blood.

Methyl salicylate is readily absorbed by the skin, for after an application of four grammes to the thigh, as much as 13 grammes of salicylic acid may be found in the urine passed during the next twenty four hours, at the same time a large quantity is eliminated by the intestine, as shown by analysis of the dejecta

The daily elimination through the urine takes place regularly in the course of prolonged treatment, without lesion of the skin

Methyl salicylate, like guaiacol, is absorbed in the form of vapor, as is proved by keeping it at a certain distance from the skin by means of wire gauze, an arrangement which does not interfere with its absorption

The method of applying methyl salicylate to the skin is the same as that employed for guaiacol. The liquid is applied with a brush, or spread out uniformly by means of a dropper, on the skin of a limb, usually the thigh. The region is then covered with waterproof, in order to prevent the vapors from escaping, and ultimately with cotton wool so as to keep the temperature at a point favorable to volatilization, the whole being left in place for twenty four hours. As a rule, the authors have employed each time four grammes of methyl salicylate. If a larger dose is required, it is necessary, before applying the liquid, to cover the limb with a muslin bandage by which it can be soaked up. To mix the medication with lard or vaselin appears to interfere with its absorption.

The indications for cutaneous application of methyl salicylate are the same as for the ingestion of sodium salicylate. The method presents the advantage of exerting no unfavorable influence on the digestive tract, and of permitting the application of treatment *loco dolenti* simultaneously with constitutional treatment.

Many other substances, in addition to guaiacol and methyl salicylate, are doubtless capable of being introduced into the organism through the skin. This is indeed probably the case with all substances which, though boiling only at a high temperature, are somewhat volatile at ordinary temperatures.

Non volatile substances are not absorbed at all whereas highly volatile ones are more readily absorbed by the lungs than by the skin, only those in which the volatility is slight and the absorption by the lungs practically nil being more easily absorbed by the skin. Among these are eucalyptol, which is absorbed by the integument. Considering that the digestive organs of tuberculous patients require to be carefully managed, and that hypodermic injections are attended with difficulty when it is necessary to administer large doses of a certain remedy, it would appear to be advisable to apply

eucalyptol, like guaiacol, to the skin in the treatment of tuberculosis

Absorption by the skin of certain volatile substances, as well as absorption by the intestine, being subject to well established laws, this method of administration makes it possible to measure exactly the therapeutic action of the remedy, while it presents the great advantage of not interfering in the least with the digestive function

A New, Cheap Disinfectant Derived from Petroleum Refuse —

Bartochewitch (*Medical Week*) added to petroleum refuse twenty parts by volume of strong sulphuric acid, mixed thoroughly, and allowed a precipitate to separate during twenty-four hours in the cold. On the bottom, to about one-third the height of the vessel, was formed a tar-like mass, surmounted by an opalescent black fluid. The latter was poured off, and a 10-per-cent solution of caustic potash of somewhat less than the original volume gradually added, the liquid being carefully shaken up until a perfectly homogeneous, soapy, yellowish-brown mass was obtained, from which emulsions of variable consistency could be prepared. The emulsion used in his experiments consisted of 200 parts of the disinfectant dissolved in 800 parts of hot water at 75°C , shaken up in the bottle from fifteen to twenty minutes, and filtered through cotton-wool, to separate particles which had not become emulsified. In this way a dirty milky liquid, in color more like whey, is obtained, consisting of minute fatty particles and of an aqueous solution of disinfecting substance, but containing no vegetable or animal micro-organisms. If the emulsion is allowed to stand two or three days, the emulsified particles partly rise to the surface of the liquid, but it is only necessary to shake it up a few times for them to be again equally distributed through it. The alkalinity of this liquid was determined by titration to be one per cent of caustic potash. With this liquid he was able to kill the anthrax bacillus in 24 minutes, and the same germ with spores in 48 minutes. He sums up the advantages of this disinfectant as follows

- 1 Being without any odor of its own, the disinfectant destroys evil smells, developing only at the beginning of its action a slight ammoniacal smell

- 2 Its oily particles, resulting from the decomposition of the soapy disinfecting mass, gradually rising to the surface of the liquid to be disinfected, prevent the access of oxygen from the air to the putrefying products, and thus hinder their further decomposition

- 3 The liquid being disinfected gradually separates out of the

disinfectant the active constituents, whereby the continuance of its action is insured

4 Its cheapness especially commends it, as, with the exception of tar and its products, it costs less than any other disinfectant. With it the excreta of a human being can be disinfected at an expense of one cent each day.

Some Arsenical Preparations —

Danlos, in the *Medical Week*, says he has experimented with three arsenical preparations (1) metalloïd arsenic, (2) pure arsenic sulphide, and (3) cacodylic acid.

The two former, in doses of from 15 to 25 centigrammes daily, mixed with honey in the proportion of one per cent, have apparently been useful in psoriasis, and were always well borne.

Cacodylic acid has been administered, in the form of sodium cacodylate, to a patient suffering from psoriasis, in doses of 25 centigrammes daily, representing a quantity of arsenic equal to that contained in 56 centigrammes of sodium arseniate. The drug was well borne at this dose and appeared to exert a beneficial influence on the affection. The same was the case with another psoriasis patient, to whom the cacodylate was given in the form of hypodermic injections, the daily dose in this case being 10 centigrammes, equal to 225 milligrammes of sodium arseniate.

In a third patient, suffering from adenia, as much as 15 centigrammes of the acid was injected ten times within three weeks. These injections were well borne, the pain was not greater than that caused by injections of morphine. The patient who had lost 35 lbs. in weight during the previous year, gained a kilogramme within a fortnight, but there was no decrease in size of the glands.

These results, though few in number, call attention to this peculiar substance which in spite of the large proportion of arsenic (upward of 54 per cent) it contains, and its solubility, appears to present a comparatively slight toxicity. In all probability the dose might be largely increased.

Effects of Antitoxin on the Blood Corpuscles —

J S Billings, Jr, (*Medical Record*) summarizes these as follows

1 The red corpuscles of the blood in diphtheria undergo a diminution in number in cases of moderate severity and in severe cases. Regeneration is slow.

2 The leucocytes are increased in number in all but two classes

of cases, exceptionally mild cases and exceptionally severe ones. As a rule, the amount of leucocytosis is directly proportionate to the degree of severity of the case. The leucocyte curve shows no correspondence to the clinical course of the disease. The number of leucocytes often remains higher than normal for days after all inflammatory phenomena have disappeared. The leucocytosis is similar in character to that seen in pneumonia and scarlet fever, the increase being in the so-called polynuclear forms.

3 The percentage of hemoglobin falls coincidently with the number of the red corpuscles, and to the same relative degree. But the regeneration of the hemoglobin takes place much more slowly than that of the red corpuscles.

4 In cases treated with antitoxin the diminution in number of the red corpuscles is much less marked than in those cases treated without it, in a majority of the cases no such diminution takes place. The leucocytes are apparently unaffected by the antitoxin. The hemoglobin is also much less affected in the cases treated with antitoxin, thus confirming the statement as to the red corpuscles.

5 In healthy individuals injected with antitoxin, the red corpuscles show a very moderate reduction in number in about one-half the cases. The hemoglobin is correspondingly affected. The leucocytes are apparently unaffected by the injections.

6 No peculiar characteristic changes in the morphology of the corpuscles were to be made out.

7 It is improbable that any information of prognostic importance is to be gained by examination of the blood in diphtheria.

8 The antitoxin treatment of diphtheria has no deleterious effects upon the blood-corpuscles. On the contrary, it seems to prevent degenerative changes which would otherwise be brought about.

Cimicifuga Racemosa in the Treatment of Chorea —

F R Millard (*Medical and Surgical Reporter*, Jan 18, 1896) says that if reports in the medical journals are a fair index of the mode by which chorea is generally treated, the use of black cohosh is too much neglected. His personal experience corroborates entirely this assertion. The only failures he has seen (excluding cases in infants) have been where the chorea supervened upon an attack of acute rheumatic endocarditis. In all such cases the chorea persisted in spite of treatment, until death, which occurred from eighteen to forty-two hours after the onset of the neurotic complication. In ordinary cases of chorea a moderate degree of anes-

thetia will control movements for a variable time. In these fatal cases, deep surgical anesthesia prevented general movements of the trunk and limbs, but did not stop the twitchings of single muscles or small groups of muscles, and before consciousness returned the movements would be as general and as severe as ever

He thinks that chorea is rapidly and certainly cured by black cohosh, the administration of which is free from danger, while arsenic is not, furthermore, the latter is prone to set up gastric disturbance. He commonly continues the treatment after all choreic manifestations have subsided this prevents relapses, and is especially useful in overcoming the heart murmurs which often persist after other signs of the disease have disappeared

Geranium Maculatum In Hemoptysis —

C J Wendt (*New York Medical Times*) says this drug has lately received some attention from the profession in pulmonary hemorrhage. Extended clinical experience with it in the Metropolitan Hospital has confirmed its value

Geranium maculatum contains about 30 per cent. of gallic and tannic acid, together with gum resins, sugar, starch, and albumin

It has been customary to prescribe this drug in from two- to five-drop doses of the tincture, repeated every two hours, upon the first signs of blood in the sputum, and the results have been uniformly good. A few doses generally suffice to stop the flow, and only in cases of long standing has it been found necessary to continue the treatment over any length of time

In such cases the influence of the drug manifests itself by a change in the character of the expectorated blood, which becomes darker, clotted, and much less in quantity

As many as fifty cases have been so treated in the last two months, and in only one case has it failed to control the bleeding, this being a case of four months' standing, and under the action of the remedy it is slowly improving

Not only in phthisis is the drug of value, but the same result has been obtained in cases of bronchitis and passive congestion

Treatment of Prostatic Hypertrophy —

The *Medical Week* (January 1896) quotes Professor English of Vienna as having treated this form of hypertrophy by the administration of tablets made from bullock's prostate. In four cases treated in this way he obtained improvement in the urinary troubles, and in two there was a marked reduction in the size of the gland

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN, A.M., M.D.,

Professor of Clinical Gynecology in the College of Physicians and Surgeons, Chicago, Professor of Gynecology in the Post-Graduate Medical School, etc.

The Heart in Pregnancy.—

In concluding a most instructive course of lectures upon "The Heart in its Relation to Pregnancy, Parturition, and the Puerperal State," delivered before the Harveian Society of London, Dr. Montagu Handfield-Jones offers the following deductions (*The Lancet*, Feb. 1, 1896)

1 Both by clinical evidence and by logical deduction we are justified in accepting the fact of hypertrophy of the left ventricle occurring in normal pregnancy as proven. In delicate and feebly developed subjects it may sometimes be absent, and in these cases signs and symptoms of cardiac insufficiency are likely to occur.

2 A certain amount of dilatation of all the chambers of the heart does normally occur in pregnancy.

3 Failure of the ventricle has a distinct effect upon the course of pregnancy. In the early months it leads to abortion, and in the later months to premature delivery. Porak confirms this point, and says that "heart troubles have an evident influence on pregnancy, by provoking metrorrhagias, by determining very often abortions or premature delivery, by producing placental lesions, and by acting harmfully on the infant, who sometimes dies before birth, or is born under conditions not favorable to development and disposing towards premature death."

4 The heart during pregnancy and the puerperium is specially liable to undergo fatty degeneration. This may be due to retrograde changes taking place after delivery, or may depend on the premature setting-in of these changes together with an insufficiently oxygenated state of the blood, dependent partly on anemia and partly on lung disease.

5 The condition of the muscular heart-wall is of more importance during pregnancy than the valvular lesion, many women with valvular lesions pass through their early pregnancies without any sign of heart-failure, but as the heart muscles become deteriorated by the strain of repeated pregnancies they show increasing evidence of cardiac insufficiency.

6 Of all the forms of valvular lesion, mitral stenosis of a marked degree is the most disastrous, this is largely due to the

extra strain thrown in these cases on the pulmonary circulation and the right heart. The increased arterial tension, the increased volume of blood, and the increased development of the left ventricle, all tend to produce dilatation of the left auricle and the right ventricle. The pulmonary circulation is thus kept continually congested, unless pronounced hypertrophy of the right ventricle takes place. At the close of delivery, when more blood collects in the right side of the heart, the risk is increased and the danger reaches its maximum.

With reference to treatment, the author says

"The question is often before us. Is marriage to be permitted when the woman is the subject of chronic heart disease? Regarding this, Macdonald says 'Chronic heart disease ought to be looked upon as a grave contra indication of marriage, more especially if it assumes the form of anything approaching to severe stenosis of the mitral valve or to serious aortic incompetence. In such cases we ought, if consulted, to dissuade from marriage.' On this point I do not feel inclined to adopt Macdonald's opinion. If we read carefully over the long lists of cases of heart mischief published from time to time, we shall notice (as has been already said) that many of the women had borne several children without any complication, though undoubted cardiac mischief had existed from the time of their first conception. Provided a valvular lesion is well compensated, and the muscular tissue of the heart can be judged to be sound, and provided also that the patient is a young woman in whom processes of repair may reasonably be expected to go on at a healthy rate, there would be no just reason for forbidding her to marry. In every case it would be well to advise the patient to remain under medical supervision for the space of six months, or even a year, if she has not already done so, that an opinion might be formed whether the disease was quiescent and vascular equilibrium well established, or whether, on the other hand, yielding of the ventricular walls and dilatation of the cavities were slowly advancing. We ought not to give our sanction to marriage if, in connection with chronic heart disease, there are any serious symptoms of cardiac disturbance present, such as attacks of dyspnea, breathlessness, palpitation on exertion, hemoptysis, etc., and this injunction ought to be more imperative the younger the patient is, and the more recent the acute disorder which has given rise to the lesion.

"Abortion and premature labor often occur spontaneously in cases of failing heart, but the question is frequently asked whether it is good treatment to induce delivery in patients suffering from

active heart mischief during pregnancy The question should rather be put in another form, viz Do cases ever exist in which it is justifiable to bring about abortion or premature delivery? To the first form of question we must certainly answer 'No,' but to the second we can reply 'Yes' It is true that in a certain number of cases delivery by nature's efforts alone has led to an immediate improvement in the heart symptoms, but it is none the less true that when physicians have induced labor during the latter months because of a condition of cardiac insufficiency the result has been generally disastrous It has been well said that the condition of any patient in whom it is thought a necessary operation is one of extreme gravity, and the mere fact of interrupting the pregnancy will not stay the cardiac degeneration which is going on Although the patient may survive the labor, she will probably succumb during the early days of the puerperium In practice it would seem that artificially induced labor throws more strain on the heart than when the process is originated by nature Clearly, when the heart has already been exposed to the toil of seven or eight months of utero gestation and is showing signs of rapid failure, it is not prudent to suddenly throw upon it the effort of labor The cases in which we should resort to the induction of premature labor are those in which it seems desirable at any cost to relieve the diaphragm from the upward pressure of a large abdominal tumor such as the pregnant uterus With regard to abortion in the early months, the case is different In many recorded instances of serious cardiac complications rendering the latter part of pregnancy, labor and the puerperium a period of continued danger, and resulting too often in death, it is clear that symptoms of commencing failure, such as palpitation, breathlessness on exertion, and malaise, had been noted as early as the third or fourth month In such a case there seems to be no justification for exposing a failing heart to the strain of pregnancy during the remaining months of utero-gestation The emptying of the pregnant uterus at the fourth month cannot be compared with the strain of labor in the last two months of utero-gestation The same course may be recommended in a patient who has had heart disease and has passed through three or four confinements safely, for should she become pregnant again clinical experience demonstrates that the risk she encounters is vastly increased No physician would lightly interfere with the course of pregnancy, but it is folly to allow things to take their course when science has taught us that the course is almost certainly laid on the downhill track In conducting the labor at full term, the point may be considered as

established that the second stage should be made as short as possible and that forceps or version is a most valuable aid

"Regarding the action of free bleeding during the third stage of labor, I would earnestly bear testimony to its useful effect. A free loss tends to relieve the right heart from undue engorgement and considerably lessens the risks of sudden stoppage of the heart. Equally useful is the application of leeches over the liver or heart during the puerperium when blueness of the lips and face, with dyspnea and pulmonary troubles, tell a tale of an overdistended and failing right ventricle.

"Of all drugs, strychnine and nitrite of amyl have seemed to me to be the most useful. The latter drug, by dilating the arterioles and keeping the blood in the peripheral circulation, gives temporary relief to the failing right ventricle and lessens the work of the overburdened heart. The action of strychnine as a cardiac tonic is too well known to need notice here."

The Lemon as a Pessary —

The *New York Medical Journal* is of the opinion that the poor not infrequently stumble upon valuable therapeutic agents or principles in their efforts to cure themselves of disabling maladies. We quote from the issue of May 23, 1896

"At a recent meeting of the Lyons Society of the Medical Sciences, as we learn from the *Lyon Médical* of March 29, a hospital interne, M. Berard, showed a lemon, one of a number which a woman, 68 years old, had carried in her vagina by turn for twenty-two years, on account of prolapse of the uterus with cystocele and proctocele. This particular lemon was medium sized and had been worn for about six weeks. Ordinarily, according to the woman's story, she had been able to remove her lemon easily, and had done so about once a month, but on this occasion she had asked to have it removed. It was extracted without much difficulty by means of a Museux's forceps, and, to the patient's unconcealed displeasure, replaced with an appliance more familiar in gynecological practice. The lemon seemed to be unchanged, it gave out no unpleasant odor and presented no trace of putrefaction.

"The uterine prolapse had come on after the menopause, but its primary cause had been, according to M. Berard, a rupture of the perineum incurred in the course of one of the woman's five confinements and left unrepaired. She had at first worn a Dumont palier pessary, but this had proved uncomfortable, and, acting on the advice of another woman, she had substituted the lemon for it.

She declared that a lemon had always answered the purpose, that it was easy of introduction, that it readily kept its place, and that she could remove it without much trouble. In one instance, however, she had been obliged to wear one lemon for a year continuously, because it was too large for her to remove, but at the end of that time it had escaped of itself, sodden, to be sure, but without having given rise to any eschar or any infection, either of the vaginal wall or of the cervix uteri.

"At the examination, the mucous membrane of the vagina and the cervix had been found rosy, sound, and free from excoriation, so that it might be questioned if this pessary had not been really antiseptic, and if it had not some advantages in cases of prolapse coming on after the menopause, when there was no longer any need of taking the menstrual flow into consideration. It was questionable, too, M. Berard thought, if much more costly pessaries would have been so well borne for so long a period by a woman who had paid no attention to hygiene and had to work all the time.

"The use of the lemon within the genital canal is not wholly novel, even the apple has been used as a pessary, as in an instance that M. Berard cites from a treatise on Hernia, by A. Verdier, published in 1840. So protracted an employment of lemons for a mechanical purpose, however, must have been rare, if indeed it has ever occurred at all, *a fortiori* may this be said of so prolonged a sojourn of a single lemon in the vagina as that of which M. Berard spoke."

Labor during Typhoid Intestinal Infection, with Complications Following Puerperium —

Ponciano Ibanez y Diaz, of Madrid, reports (*Anal de Obstet, Gin y Ped*, February, 1896) this case, which is interesting as showing the amount of resistance which some constitutions may oppose to the ravages of disease.

The patient was a primipara, aged 22, in labor at term. Notwithstanding the alarming condition of the mother—pulse-rate 110, temperature high, vomiting, diarrhea, sordes on teeth, and a generally serious typhoid state—the labor was natural and easy in all respects, and resulted after twenty-four hours in the birth of a healthy child. The patient continued unimproved after the delivery, temperature 101.7° to 104°, diarrhea and tympanites, but no local pelvic disease, and the lochia were normal.

Pain in the right side developed about the third week of the fever, and an area of consolidation was discovered over the left lower

lobe of the right lung, backward The sputa were of a dark brown color and offensive odor, showing gangrene The temperature now ranged from 98.6° to 105.8° , with chills and sweats

Two weeks later the temperature began to decline and the character of the sputa improved, and at the end of another fortnight the affected lung was as useful as the other Upon getting about the ward, however, pain in both limbs below the knee, with fever and high temperature, developed into double phlegmasia alba dolens This, like the lung complication, was attributed to embolism from the intestinal tract.

The treatment from the first consisted of intra uterine douches after labor, of a 1:5000 mercuric solution, with liquid diet and free stimulation For the lung lesions, inhalations of spirits of turpentine and thymol solution were given, and the area over the affected lung was blistered Also, for the hyperemia, baths were given of fifteen minutes duration Appropriate treatment for the phlegmasia resulted in perfect recovery after twenty five days

An Unusual Occurrence —

In a late number of the London *Lancet* a case of ovariectomy is reported by Walter Falls, M R C S, which presents an unusual feature The operation was performed for a large ovarian cyst, unilocular and quite free from adhesions The pedicle, being rather broad, was transfixed and tied in the usual way with a stout silk ligature, and it is not to the convalescence, which was perfectly normal, but to the history of this ligature that the interest attaches

The ovariectomy was done on April 12, 1894, and the patient remained well until the last of June, 1895, when she returned to her physician suffering with symptoms of stone in the bladder

Examination was, however, refused until July 19, when the pain compelled submission A calculus, approximately one and a half inches long and three quarters of an inch broad, was found and removed by crushing—not, however without considerable traction, owing to the resistance of some foreign substance. When the blades of the instrument were withdrawn, they carried a thick silk ligature covered with a certain amount of phosphatic deposit

The author states that this ligature was undoubtedly that which had been used for tying the pedicle of the ovarian cyst

It seems difficult to understand, the author adds, how a ligature used in tying the pedicle of an ovarian cyst could ultimately become the nucleus of a vesical calculus in a case in which there was no injury to the bladder during the operation and no difficulties what

ever connected with it, the patient continuing in perfect health for nine months afterward. It is also remarkable how the ligature, which must have set up a certain amount of irritation, and which eventually perforated the bladder, could do so without giving rise to any symptoms until it became lodged in that viscus.

Erysipelas and Syphilis —

Rudolph (*Centralbl für Innere Med*, Feb 1, 1896) cites the case of a woman, aged 25, who, five years after contracting syphilis, was suffering from severe headache, paresis of the left side of the face, and occasional clonic spasm, in addition, there were enlarged submaxillary glands and a chronic arthritis affecting both knees, syphilitic cachexia was marked. She had been through several courses of anti-syphilitic treatment, including mercurial injections and inunction. After an attack of erysipelas the patient was cured of her chronic syphilis: the glands went down, the pains in the head and joints disappeared, and the facial paralysis gradually yielded. For a year she remained free of any syphilitic manifestation, when a gumma appeared in the leg. She would not submit to further anti-syphilitic treatment. The rapid and beneficial effect brought about by the erysipelas in this case was striking. The cure was not permanent, but the erysipelas had more effect on the disease than the anti-syphilitic treatment.

A Fetus Carried for Twelve Years in the Abdominal Cavity —

M. Denis presented at a recent meeting of the Lyons Medical Society, according to the *Lyon Médical*, a fetus which, as the result of an extra-uterine pregnancy twelve years before, had remained in the abdominal cavity that length of time. The fetus had not become calcified nor macerated. Operation had been done for pain which had appeared shortly before. The walls of the cyst containing the fetus had become very thick, and the contents were removed with considerable difficulty.

Statistics of Lactation —

Dr. Wieden (*Centralbl für Gynäk*) has collected interesting statistics at the Freiburg Maternity. Out of 525 in childbed, only one-half could suckle thoroughly during the first two weeks, 99 secreted no milk, 49 had imperfect nipples, 46 had fissured nipples, and 44 had insufficient secretion of milk. Only 33 suckled without unfavorable complications. The development of the nipple bore a direct relation to the value of the breast as a secretory organ.

PEDIATRICS

UNDER THE CHARGE OF W. S. CHRISTOPHER, M.D.

Professor of Diseases of Children Chicago Polyclinic Professor of Pediatrics College of Physicians and Surgeons, Chicago

Causes of Enuresis in Children —

Harold Williams (*Boston Medical and Surgical Journal*, March 12, 1896) says that in looking over his notes he finds that in the past five years he has treated sixty two cases of nocturnal enuresis in children, a number which is certainly sufficiently large to serve as his apology for directing notice to this troublesome affection. It is, moreover, a source of surprise to see how lightly this subject is dismissed by most modern authors. Sachs, for example, in his treatise on the Nervous Diseases of Children, in spite of the fact that the infirmity is now classed among the neuroses, disposes of the whole question in a single page in which the assertion is made that "Many medical men have seriously suggested that corporal punishment applied to the nates is the only efficient remedy, but

it is very certain that such punishment need not be inflicted in the majority of cases."

The ages of the writer's patients were as follows

	Boys.	Girls.	Total.
Two years	2	1	3
Three years	0	3	3
Four years	3	0	3
Five years	2	0	2
Six years	1	3	4
Seven years	4	6	10
Eight years	1	3	4
Nine years	1	2	3
Ten years	3	1	4
Eleven years	3	2	5
Twelve years	4	5	9
Thirteen years	1	1	2
Fourteen years	1	0	1
Fifteen years	2	1	3
Total	28	34	62

From this table, age does not seem to be a particularly important factor, though in this connection it is interesting to note that while Dr. Rotch, in his new book on pediatrics, in the two pages devoted to this affection, says "The cases in which enuresis does not disappear at puberty are nearly always in girls," we find that in the fifteen cases in the table occurring after the twelfth year rather more than 50 per cent occurred in boys.

In thirteen of the cases a definite cause of reflex irritation was detected and corrected, in twelve with a cessation of the enuresis

These causes were as follows Adherent prepuce, four cases, vulvo vaginitis, with gonococci, one case, oxyuris vermicularis, five cases, chronic ileo-colitis, one case, prolapse of the rectum, one case A condition of anemia and a neurotic temperament and history were noticed in a large but unrecorded number of the children A balance of forty-nine cases remains in which the cause is unexplained

Nocturnal incontinence is to be regarded as a symptom, varying in degree from a simple indication of the naughtiness of a willful child to the precursory warning of subsequent nervous deficiency and the treatment of the condition requires careful study into the causation of each particular case No case should be lightly dismissed as of trivial importance until such careful investigation has been made When tonic treatment is indicated, the author regards the iodide of potash as an extremely valuable remedy Personally he has seen no benefit derived from raising the foot of the bed

E R Bradley (*Southern California Practitioner*, June, 1896) believes that hip-elevation in the treatment of this condition is a valuable adjuvant, preventing, as it does, the flowing of the urine into the vesical neck and so stimulating the detrusor muscle and evacuating the bladder In following this plan he has met with almost insurmountable difficulties Sometimes the foot of the bed is elevated, again a pillow is placed under the hip and head Whatever plan is followed, the restlessness of the child will almost certainly frustrate the object of the treatment, namely, the maintaining of the position a sufficient length of time each night or the required number of nights to effect a cure

The Artificial Feeding of Infants —

Dillon Brown reminds the Hospital Graduates' Club (*American Medico-Surgical Bulletin*, May 9, 1896) that the basis of every artificial food for healthy infants must be milk, and for all practical purposes this means, from necessity, cow's milk Therefore the "milk question" becomes of primary importance in the artificial feeding of babies For cow's milk to be wholesome, it must come from a healthy and properly fed cow, its nutritive qualities should not be diminished by adulteration, and it should be free from contamination by decomposing animal matter or bacteria This makes it almost as important a subject as the question of water supply, and certainly a more difficult and complicated one to solve Cow's milk in the following notes means only wholesome cow's milk, which is free from adulteration and bacteria, and is obtained from cows fed on hay or grass, kept in clean

stables, and given clean and fresh bedding. At milking every precaution is taken to prevent contamination of the milk by dirty hands, udders, and vessels.

Of course, artificial feeding should be discouraged if good human milk in sufficient quantity can be obtained. When cow's milk is used, it must be modified to resemble as closely as possible human milk. Cow's milk contains somewhat less fat than woman's milk, but nearly twice as much albuminoids. If we remember that cow's milk contains more proteids and less fat and sugar, that it is distinctly acid, while the other is slightly alkaline, we have a basis upon which to prepare the food.

The general principle underlying all methods of artificial infant-feeding is to modify cow's milk so that it will resemble as closely as possible human milk, and this is done by diluting with water to reduce the percentage of albuminoids to the proper amount, and adding enough cream and sugar of-milk to raise their percentage to that in normal human milk, not forgetting to compensate for the loss brought about by the first dilution with water.

The average milk for a baby will contain 4 per cent. of fat, 7 per cent. of sugar, and 1 to 2 per cent. of proteids, which proportion can be approximately obtained by mixing cream, milk, sugar of milk, and water in proper quantities, and adding enough bicarbonate of soda or saccharated solution of lime to make the mixture slightly alkaline.

Good centrifugal cream contains about 20 per cent. of fat, but even where people have their own cow the cream is liable to be exposed to contamination by being kept too long. Therefore, it is wiser to use a cream obtained by either Meigs's or Rotch's method, although it is weaker in fat. Meigs thus directs: "One quart of good ordinary milk is placed in a high pitcher or other vessel, and allowed to stand in a cool place for three hours, then one pint is slowly poured off from this, care being taken that the vessel is not agitated, the object being to obtain the upper layer of fluid, rich in fat, and leave the lower, comparatively poor, portion behind." This upper half can be drawn off much more easily by having a stop-cock in the side of the vessel, half way between the top and bottom.

Meigs makes his food by adding three tablespoonfuls of this weak cream to the same quantity of sugar water, made by dissolving 18 drachms of sugar of milk in one pint of water, and to this is added two tablespoonfuls of lime-water. If a larger quantity is needed, the same proportions are kept.

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However, it seems to the writer that Rotch's plan is better, as it is simpler and allows more accuracy and variety in modification. He lets a quart of good milk stand in ice-water for six hours, and siphons off from the bottom 24 ounces of milk, leaving 8 ounces of cream on the top, which will, on the average, contain 10 per cent. of fat.

Now it becomes a comparatively simple matter to modify the food by mixing the various ingredients to get any percentage of fat, proteids, and sugar.

The average milk—namely, 4 per cent fat, 7 per cent sugar, 15 per cent proteids—will be obtained by mixing 8 ounces of cream, 1 ounce of lime-water, 11 ounces of water, and $8\frac{1}{4}$ drachms of milk-sugar (no milk), "4-7-2" milk will be obtained by mixing 8 ounces of cream, $2\frac{1}{2}$ ounces of milk, 1 ounce of lime-water, $8\frac{1}{2}$ ounces of water, and $7\frac{1}{2}$ ounces of milk-sugar, etc. By increasing the cream, the percentage of fat and proteids will be increased.

Even more accurate than the home modification of the food is the process of the Walker-Gordon Laboratory, and this undoubtedly marks an era in the use of infant-foods. The objections to it are those which apply to all patented processes, and its expense. The author's experience has been that the best results are obtained by the home modification of a cow's milk which is wholesome and properly handled, and when such a milk can be obtained, the infant thrives on a raw milk much better than on a pasteurized or sterilized one. He removes as much of the casein of the milk as possible with rennet or dilute hydrochloric acid, and substitutes in its place the albumen from an egg. This gives better results, as we would expect when we remember that cow's milk contains about five times as much casein and only one-half as much albumin as human milk.

The farinaceous foods and the so-called milk-foods are, in the author's experience, rarely or never indicated, and are usually harmful. The Læbig foods are often of value in children with poor digestive powers, but it must be remembered that they never can be, and do not claim to be, a substitute for milk, but are only to be used as a valuable addition in certain cases to properly handled and properly modified cow's milk.

Chronic Interstitial Nephritis during Early Life —

Henry Ashby (*Pediatrics*, March 1, 1896) says cases of "red granular kidney" (chronic interstitial nephritis) are not commonly found during the earlier years of life. This form of kidney disease

belongs rather to middle and advanced life, when various degenerative changes are apt to take place in the tissues as the result of gout, alcoholism, or some other cause. Cirrhosis of the liver and granular kidneys are occasionally found in children near puberty, without any definite cause being discovered, while it is usually possible to exclude gout and alcoholism.

He has met with only three cases of contracted granular kidneys among children, which were verified post mortem, though in several others he suspected their presence during life. Two of the fatal cases were in girls¹ aged 10½ and 11½ years respectively, and one in a boy aged 12 years. In the first case the kidneys together weighed 1½ ounces, in the second case 3 ounces (the right 2¼ ounces, the left ¾ ounce), and in the third 2½ ounces. In appearance these kidneys closely resembled one another, being small, tough, reddish in color on section, the cortex more or less wasted. The capsules peeled off with difficulty, leaving a typical granular surface. On microscopical examination, large tracts of fibrous tissue were visible, there was an infiltration of leucocytes between the tubules, and many atrophied glomeruli surrounded by fibroid tissue were seen. Some of the tubules were dilated, as the result of pressure or blockage.

In all the cases there was increase in the weight of the heart, namely, 8 ounces, 8¾ ounces, 8 ounces, respectively, the walls of the left ventricle were hypertrophied, with no marked dilatation of the cavity, and in one the mitral valves were thickened from an old attack of endocarditis.

All three cases came under notice for the first time a few days before the fatal issue. In one the history was very imperfect. In two there was a history of severe frontal headache, thirst, and frequent passage of urine for some months or more before coming under observation. In one case there was a history of fits for two or three months before admission. In one there was edema during the last two or three weeks of life, in the other two there was no edema from first to last. In one case no urine was obtainable, in two, the urine during the time they were under observation varied in specific gravity from 1.010 to 1.015, the albumin amounting to about one half the volume on boiling.

Treatment of Empyema in Children —

J. E. Winters (*Practical Medicine*, March, 1896) says the natural history of empyema furnishes clear indications as to what the treatment of this condition should be. There is no doubt as to the

¹ Ashby and Wright's *Diseases of Children*, third edition p. 560.

disastrous issue of nearly all cases when left to themselves When, therefore, we have proved the existence of pus in the pleural cavity, surgical aid should be promptly invoked for its removal

The object of treatment is to remove the pus, to prevent reaccumulation, to procure complete re-expansion of the lung, and to leave behind no deformity Empyemata do not heal by granulation from the bottom, but by expansion of the lung, ascent of the diaphragm, and contraction of the chest-wall It is generally stated that when we open the pleura, air enters and the lung collapses, but the author's belief, based on physical examination, is that in recent cases, as the pus escapes, the tension is relieved and the lung expands In other words, in all recent cases there is more or less complete re-expansion of the lung on the withdrawal of the pressure which has been exerted by the fluid The emptying of the pleural cavity at the time of the operation is not due to the action of gravity, but to forcible expulsion of the fluid by the expansion of the lung and the pushing up of the diaphragm Our attention should be directed, then, to the maintaining of full expansion in the lung at the time of the operation Repeated aspirations or any withdrawal of the fluid before making a free incision, by diminishing the tension, renders the expulsion of the pus less forcible, and immediate expansion of the lung is less complete In any case of empyema where we do not, on physical examination at the time of the operation, get evidence that the lung expands and begins the performance of its functions, the prognosis as to ultimate recovery is very doubtful Operative interference, therefore, must be delayed as little as possible after active pleuritis has subsided The chest-wall and the visceral wall must be approximated, and delay in the operation leads to adhesions, thickening of the pleura, and interference with the ascent of the diaphragm

Treatment of Whooping-cough —

G C Jones (*Maritime Medical News*, February, 1896) claims to have derived little benefit from the much heralded bromoform treatment He has never seen the attacks relieved by its use, nor the disease shortened The chief objection to it, aside from its inutility, is that it has a disagreeable taste and odor and, owing to its high specific gravity, is difficult to suspend Consequently the last few doses from a given bottle are apt to be too strong

He relies upon atomization of antiseptic solutions, in case children are too young he uses vaporizations, employing the ordinary croup kettle The mixture which he commonly uses is composed of eucalyptus, carbolic acid, and turpentine

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.

Professor of Neurology in the Chicago Polyclinic Consulting Neurologist to the Illinois Eastern Hospital for the Insane.

Lumbar Puncture —

Puncture of the spinal canal for the removal of cerebro-spinal fluid has already taken a well recognized place as a diagnostic and even therapeutic measure, although it was introduced by Quincke only a very few years ago. By far the best—indeed almost the only—contribution to this subject in American literature, is the paper of Jacoby in the *New York Medical Journal* of December 28, 1895, and January 4, 1896. He reports thirty five cases, in one instance as many as seven punctures being made in one case. The cases were as follows: Supposed tubercular meningitis, 17; purulent meningitis, 1; meningitis with abscess, 1; tumor of the brain, 6; hydrocephalus, 4; ventricular hemorrhage, 1; spinal hemorrhage, 1; acute mania, 3. He also punctured in some additional unreported cases.

The operation itself is not dangerous and not particularly difficult, although more or less skill is requisite. The puncture is made between the third and fourth, or between the fourth and fifth, lumbar vertebræ, at which location there is, of course, no danger of injuring the spinal cord, as this organ terminates at about the first lumbar vertebra. Jacoby introduces the needle about five millimeters from the median line. In children the puncture may be made in the median line, but the lateral site is preferred. To confirm the location for puncture, as found by counting the spinous processes, Jacoby uses as a landmark a line drawn from the crest of one ilium to that of the other. This line passes over the fourth lumbar vertebra, so that the first spinous process above it is the third lumbar. Anesthesia is not necessary for the operation, but is a useful aid. The depth to which the needle must be inserted before reaching the subdural space is given as from two to six centimeters according to the age and muscular development of the subject, but Goldscheider in one instance penetrated to a depth of eight centimeters (over three inches) before obtaining fluid. It is better not to aspirate, but to allow the fluid to drain away from its own pressure. Furbringer has withdrawn as much as 110 cubic centimeters at one sitting.

Accidents or unpleasant consequences are exceedingly rare, but sudden death has been recorded as following the puncture in several

cases of brain tumor Stadelmann calls attention to another possible danger—that is, the danger of drawing infectious material from the cerebral cavity into the spinal canal, when this latter has remained uninfected In tumor of the brain the puncture is ordinarily immediately followed by intense headache, lasting for about fifteen minutes, succeeded by more or less relief In one case of compression myelitis, Goldscheider repeatedly injected, after puncture, a solution of cocaine into the dural sac, but with negative results as far as the pain and other symptoms of irritation were concerned

The therapeutic results so far have not been very promising, although temporary amelioration has been procured in a large number of cases of different cerebral and spinal-cord affections Freyhan punctured in one case of tubercular meningitis, the diagnosis being confirmed by the presence of tubercle bacilli in the fluid The patient immediately improved, and after a second puncture went on to complete recovery This case stands alone, however, and is, we believe, the only one on record of recovery in a case known to have been tubercular meningitis

As a diagnostic aid, there can be no doubt as to the value of lumbar puncture The amount of albumin in the fluid is of some significance In tumor or abscess of the brain, albumin rarely exceeds 0.4 to 0.8 per cent, while in meningitis the proportion is about 1.6 per cent The fluid from cases of meningitis also coagulates spontaneously, while in cases of tumor and abscess it does not Examination for pus micro-organisms very frequently gives positive and valuable information The first recorded case of this kind is one of Lichtheim, in which cerebral symptoms appeared in a patient with a slight otitis Spinal puncture removed streptococcus pus, and the consequent diagnosis of purulent meningitis was proved to be correct at the subsequent autopsy Other observers have since reported similar cases, and Jacoby reports one of his own in which the diagnosis lay between abscess alone and abscess complicated by meningitis Spinal puncture revealed pus Operative interference was discountenanced, and the autopsy revealed purulent meningitis and abscess of the cerebellum Examination of the fluid for tubercle bacilli has given positive results in a large proportion of cases of tubercular meningitis, although the examination must be careful and extended, as the number of bacilli may be very small Furbringer found bacilli in twenty-seven out of thirty-seven such cases, all confirmed by autopsy Jacoby found the bacilli in eleven out of seventeen suspected cases, but his diagnosis could not always be

confirmed, as autopsies were not obtained. This author reports an interesting case, which shows that the diagnosis of tubercular meningitis may at times be made by means of spinal puncture before the clinical symptoms have sufficiently advanced to make such a diagnosis possible. It is to be noted, however, that in a few cases where meningitis has been confined to the brain the fluid removed has been perfectly clear. Jacoby reports two very exceptional and interesting cases which we deem of sufficient interest to be quoted in full.

Case 1—A woman, 22 years of age, in June 1895, slipped from the upper step of a front stoop, and slid from top to bottom of the steps in a semi-sitting position, striking with the lower part of the spinal column upon the sidewalk. She was somewhat dazed from the fall, attempted to rise, but, experiencing intense pain in the back about the mid lumbar region and tearing pains in the lower extremities, she remained lying where she was. Then assisted to her feet by passers-by (she is sure she could stand, and thinks she walked to the carriage) she was placed in a conveyance and driven to her home about twenty blocks distant. During this ride she noticed that her legs felt numb and heavy, and when she arrived she was unable to move them and had to be carried into the house.

I saw her with her physician about six hours after the injury. She had paralysis of both legs, less marked upon the right side. There was a large, bruised tender spot in the lumbar region but no evidence of either fracture or dislocation.

A careful examination showed that all power of motion, except that of adduction and flexion of the thigh was lost in the left lower extremity, while upon the right side some extension of the knee and abduction of the thigh were also possible. Urine could not be voluntarily passed and the superficial reflexes (plantar) and knee-jerks were absent. There was anesthesia of both legs from the hips downward, including the perineum and labia. The skin over the hips and upper third of the anterior aspect of the thigh was not so anesthetic as that lower down. A diagnosis of spinal hemorrhage with or without fracture, was made and, on account of the history of pains followed by paralysis I believed it to be intra meningeal probably subdural or subarachnoid and not intra spinal. At my suggestion a puncture was made between the fourth and fifth lumbar vertebrae, and about fifteen cubic centimeters of almost pure dark blood was drawn off. Thirty minutes after the puncture the anesthesia had disappeared entirely from those parts which had previously been partially anesthetic but motion was no greater than before. The following day in the afternoon, she had fairly good control over the muscles of both thighs other wise her condition was the same. She improved from day to day, regaining control over her bladder on the third day, and in two weeks after the accident was nearly well. She then showed what has remained since, weakness in the peronei and extensors of the ankles, and absent knee-jerks.

Case 2—A young college student met with a bicycle accident and was violently thrown against a stone fence. He was not unconscious was able to move his legs, and tried to get up but could not.

He complained of pains in the back and upper gluteal region. I saw him

at his home the day after the accident. He then complained of the same pains, of cramps and weakness in both legs, and of inability to retain urine or feces. Examination showed a pronounced ecchymosis over the upper lumbar region, which was painful to pressure. Evidences of fracture or dislocation were not present. Both legs were weak, but not paralyzed. Thus, while he was not able to stand, he could in the horizontal position perform all movements except extension of the feet and toes. Sensibility was not lost, but there was marked reduction of the sense of touch from the crest of the ilium downward, about the same upon both sides.

Under an anesthetic, puncture was made between the third and fourth lumbar vertebrae, and about twenty cubic centimeters of dark fluid blood with drawn. For four days his condition remained unchanged, and he had slight rise in temperature. A week after the accident he had regained control of bladder and rectum, the disordered sensibility was much improved, and he was able to stand with support. After four weeks there was complete restoration, except for an area of partial numbness involving the perineum, scrotum, penis, and a small, irregular area on the back of the thighs, flexion and extension of the toes were also slightly impaired, and both cremaster and plantar reflexes were still absent. His knee-jerks had never been lost.

Jacoby's summary, somewhat abbreviated, is as follows. By means of lumbar puncture, cerebro-spinal fluid can be easily removed from the subarachnoid sac of the spinal cord and from the cavities of the brain. Therapeutically it is only of value as a palliative. Diagnostically it possesses great clinical advantages in the diagnosis of the various inflammatory affections of the cerebral membranes and of hemorrhage into the ventricles or spinal canal. The operation is not difficult, and the necessary skill can be acquired by every practicing physician.

Kilian (*New York Medical Journal*, March 14, 1896) has reported a case very similar to the two of Jacoby just quoted. The three we believe to be unique in medical literature.

A man, aged 45, fell on his back from a height. On examination about twelve hours later he showed the typical clinical symptoms of an injury to the cord in the lumbar region and to the cauda equina. Examination of the spine showed a spot of tenderness over the third lumbar vertebra, where there was a slight ecchymosis. His condition remained unchanged for six days, when puncture was done, without narcosis, between the third and fourth lumbar vertebrae. Eight cubic centimeters of thickish tar-colored blood were aspirated. One hour after the operation the area of anesthesia had already considerably diminished, there was also slight motor improvement. The condition then remained unchanged for four days, when the patient suddenly died. The autopsy was confined to the lumbar portion of the spinal canal and revealed a few remnants of a half-coagulated hematoma within the dural sac.

At the last German Congress for Internal Medicine (*Neurolog Centralbl*, May 15, 1896) there was quite a discussion on lumbar

puncture introduced by a paper by Lenhartz, who had performed the operation 230 times on 126 patients. He places the patient in the lateral position, and punctures in the middle line between the third and fourth lumbar vertebrae. He estimates the value of the operation as follows

- 1 It allows a good estimate of the pressure and amount of the cerebro spinal fluid
- 2 The proportion of albumin is of diagnostic value. Over 0.25 per cent indicates inflammation—with some possible exceptions, as in tumor and apoplexy 0.2 to 0.4 per cent has been observed
- 3 The specific gravity is of no importance
- 4 The presence of a large number of cells indicates inflammation
- 5 The presence of tubercle bacilli is decisive evidence of tubercular meningitis. Of nineteen cases of this affection, in the last nine the bacilli were uniformly found

To the more easily find the bacilli he recommends allowing a flocculus of sterilized cotton to sink into the fluid, where it becomes permeated by bacilli, and it is then tapped upon the cover glass to be used.

In epidemic cerebro spinal meningitis, diplococci are found free or in the cells, also streptococci

The color of the abstracted fluid is of no importance. For instance, in epidemic cerebro spinal meningitis it may be purulent, sero-purulent, slightly cloudy, or perfectly clear. It is bloody in head injuries and some other conditions

Therapeutically he uses puncture in acute and chronic serous meningitis, severe chlorosis with nervous symptoms, and acute cerebral edema following head injuries. He has also noticed some amelioration in brain tumor

Kronig has found tubercle bacilli in the fluid in four out of five cases of tubercular meningitis. He has procured relief in serous meningitis and the headache of chlorosis, also in one case of acute meningitis

Goldscheider uses the same technique as Lenhartz, he avoids aspiration, allowing the fluid to slowly trickle away, and has seen no evil results. He found tubercle bacilli in three cases, but the tubercular nature of the trouble was easily determined without this aid. In epidemic cerebro-spinal meningitis he seldom found pus, but often increased tension. Unlike Lenhartz, he thinks the amount of pressure is of some significance. In answer to a question raised by Lenhartz, he says there is such a thing as serous menin-

gitis, but it is rare Rigidity back of the neck he finds to be often caused simply by the increased pressure, and it is relieved by puncture Therapeutically he has found the operation to afford only transitory relief

Schultze recommends spinal puncture as "white phlebotomy" in chlorosis, as opposed to "red phlebotomy," which has been advocated in this affection He has seen subsidence of the most threatening symptoms in tubercular meningitis, but in tumor he thinks trephining affords more relief from increased pressure than does lumbar puncture In one case of enormous hydrocephalus he saw the fluid only drop very slowly away

Ewald calls attention to the fact, above noted, that sudden death has followed the puncture in several cases of brain tumor

Hanseman supports Goldscheider in his affirmation of the occurrence of a serous meningitis, as he has seen two cases post-mortem

When the pressure falls to 60 millimeters of water, Lenhartz terminates the operation, the slow dropping away of the fluid mentioned by Schultze depends on the occlusion of the cannula He never employs anesthesia In only one case has he observed sudden death, which occurred four hours after the operation With this exception he has seen only good results, generally, immediate relief of headache, dizziness, and vomiting

Trional in Epilepsy —

Although no drug has superseded the bromides for general utility in the treatment of epilepsy, there always remains a certain, and not very small, proportion of all cases in which it is inadvisable to use this remedy, either from its inefficiency, or the production of mental and physical inertia, or the deforming acne, or the appearance of homicidal or suicidal tendencies, as first indicated by Echeverria In such cases the action of the bromides must be enhanced or corrected by combining with them other drugs, or they must be abandoned entirely and something else substituted

One of the later candidates for place as a substitute is trional Boyer (*University Medical Magazine*, March, 1896) has reported from the service of S Weir Mitchell thirteen cases treated by this drug

Case 1 — Age 15 Was having under bromide one or two seizures daily On trional, five grains twice daily, he had during the next four weeks only one severe, and four slight, attacks, on five grains t. i. d. he had in six weeks three attacks After the addition of five grains of phenacetin t. i. d. he had three

attacks in two weeks, then on bromide and antipyrin the attacks increased to one daily. On returning to the trional, eight grains t. i. d. he had ten attacks in six weeks.

Case 2—Age 21. On bromide and antipyrin had eight attacks in seven weeks. On trional another attack in eight weeks.

Case 3—Age 19. Was having on bromides fifteen to twenty attacks per month. On eight grains of trional t. i. d. she had no attack for a week when it was reduced to four grains t. i. d. She had then three attacks in two weeks. The drug was then stopped and on the second day she had six attacks, and on the third seven. On two grains of trional five times a day she had no attacks in three weeks.

Case 4—Brother of *Case 3*. Age 17. On bromides he had fifteen to twenty seizures per month. On eight grains of trional t. i. d. he had four attacks in one week, on eight grains twice daily seven attacks in five weeks.

Case 5—Age 8. On bromides averaged fourteen attacks per day. On four grains of trional t. i. d. had about four attacks per week and occasionally passed a week without any seizures. When the trional was stopped he had ten to fourteen attacks a day.

Case 6—Age 12. Had four to five attacks of *petit mal* per day. On four grains of trional t. i. d., four attacks per week on four grains four times daily, twenty two days without an attack and then several in one day. During the next four weeks there were no attacks.

Case 7—Age 23. Averaged two to three attacks a week, but had as many as five in one day. On eight grains of trional t. i. d. he had one attack in three weeks, but the fourth week had two severe, and four mild attacks. On eight grains of trional and four grains of acetanilid t. i. d. he had seven attacks in ten weeks.

Case 8—Age 18. Was having but two seizures per week. On eight grains of trional t. i. d. there was no improvement on five grains t. i. d. she had six attacks in seven weeks.

Case 9—Age 14. Had as many as five seizures a day (average is not stated). On five grains of trional t. i. d. had no attacks in six months, and the chorea of which she had been the subject for three years also disappeared. This may be considered a brilliant result.

Case 10—Microcephalic child age 5. Had five attacks per day. On three grains of trional t. i. d. had about one seizure a day for a month during which he was under observation.

Case 11—Age 10. One to four attacks per day on bromides had one every second or third day. On five grains of trional t. i. d. had one attack per day. The bromides were resumed the frequency of the attacks was not diminished.

Case 12—Age 24. One attack per week. On ten grains of trional t. i. d. there was no improvement. Fifteen grains of bromide t. i. d. caused no improvement.

Case 13—Age 16. Under no treatment had two or three attacks of *petit mal* per day and an occasional severe convulsion. Fifteen grains of bromide reduced the attacks to two or three of *petit mal* and one severe convulsion per month and he went once eight weeks without an attack. He was then given eight grains of trional t. i. d. but the dose had to be reduced on account of nausea, dizziness and 'talking queer'. On five grains t. i. d. he had three or

four attacks per month, "mostly mild." That is, the result was about the same as under the bromides. When the trional was stopped, the attacks became more frequent and severe.

We quote the closing paragraphs of the paper:

"Other cases might be added in which there was an apparent decrease in the number of attacks, but they reported at the hospital so few times that the results could not be carefully watched. Others again suffered under trional from so much drowsiness and vertigo, and had so little benefit as to the number of attacks, that the treatment was kept up but one or two weeks.

"Of the thirteen cases cited above, the first ten show a marked decrease in the number of attacks during the time of taking the trional, and the physical symptoms during this time were singularly improved. In the first five of these cases, the number of attacks was less during the time of taking the trional than during the time of taking the bromides.

"In Cases 11 and 13 the bromides controlled the attacks better than trional, and did not produce such annoying symptoms. In Case 12 neither drug seemed beneficial.

"When substituting this drug, pains have been taken not to impress the patients with the notion that they were under the influence of some novel means of relief. We think we have thus excluded the beneficial effects seen so often in the epileptic under a change of treatment. It is common to send cases to the infirmary in order that the exact phenomena of the spasms may be seen and recorded by trained observers. Very often weeks go by under these circumstances without chance to see a fit—and this in cases having before had half-a-dozen convulsions every week. Similar results from any impressive change in treatment are familiar, and Christian science, faith cure, mind healing, etc., have had in these cases their time of triumph, and then, later, have had to confess defeat before the implacable return of the attacks.

"With all these facts fully in mind Dr. Mitchell believes that trional may often be used as an efficient substitute for bromides. He has so far seen no ill-results from many weeks of its continuous use. It is at times well to give bromides in the daytime and trional at night.

"Our past experience here is that a proportion of cases of *petit mal* yield better to the continuous use of acetanilid than to bromides.

"Finally, it may be said that, of all the group, trional appears to be the most available substitute for bromides."

LARYNGOLOGY AND OTOTOLOGY

UNDER THE CHARGE OF WM F CASSIDBERRY M D

Professor of Laryngology and Rhinology Northwestern University Medical School Laryn-
gologist and Rhinologist to St Luke's Hospital Laryngologist to Wesley
Hospital etc.

Ethmoid Disease and Acute Loss of Vision —

F Hansell (*Philadelphia Polyclinic*, May, 1896) describes the case of a patient who awoke on the morning of February 13, with severe headache located mainly in the frontal region and almost absolute loss of vision. He had gone to bed the night before in his usual health, with no disturbance of sight. On examination the following week the lids and conjunctiva were normal, the cornea and anterior chamber clear, the irides moderately dilated and absolutely unresponsive to light. The lenses were clear, the vitreous chambers clouded by a great quantity of minute opacities (punctate hyalitis), the fundus of each eye was dimly seen, but their condition could be determined with moderate accuracy. The edges of the disk were not obscured by other exudation than that in the vitreous. There was no optic neuritis or choking of the disk, no tortuosity of the vessels, or choroidal or retinal hemorrhage, but each retina was edematous.

Dr Walter A Freeman made the examination of the nose. The turbinated bodies were immensely swollen, but posteriorly mucopus in considerable quantity was seen flowing from the choanae. After the application of cocaine, thick purulent secretion could be seen coming from both the superior and the middle meatus, right and left. Transillumination of the maxillary and frontal sinuses, together with absence of other symptoms of disease of these cavities pointed clearly to the diagnosis of acute purulent inflammation of the anterior and posterior ethmoid cells on both sides and the left sphenoid sinus. Appropriate treatment succeeded in checking this acute sinusitis in the course of ten days, but there was no return of vision.

In consultation Dr Risley hesitated in attributing the blindness to the ethmoiditis, and considered the possibility of a common cause, but Dr de Schweinitz gave as his opinion that the diagnosis was acute double retro-bulbar neuritis from ethmoiditis. In consultation with Drs Charles K Mills and W W Keen, it was decided that there were no indications for operation on the skull.

In considering the pathology, one must remember that the symptoms common to ocular involvement in disease of the nasal

cavities were in large part absent, the only ones present being pain in the head not localized, edema of the vitreous and retina, contraction of the retinal vessels, dilated and unresponsive pupils, and mental dullness. But the most reasonable and least unsatisfactory explanation of the ocular complication is that of a localized meningitis attended with marked swellings and edema of the periosteum covering the body of the sphenoid bone, induced by purulent disease of its cells through contiguity of tissues. If we accept the hypothesis of a single lesion, we must exclude purely local disturbance, such as thrombosis, embolism, or orbital inflammation, and refer the cause back to the chiasm. The optic chiasm was directly attacked by the swelling of its supporting structure, this in turn being occasioned by the conjoined ethmoiditis.

Laryngeal Complications of Typhoid Fever —

Of sixty-one autopsies of typhoid-fever cases, made by Drs Kanthack and Drysdale (*Journal of Laryngology, Rhinology, and O'tology*, April, 1896), the larynx was found to be affected in 26 per cent, the lesions consisting usually of more or less destructive ulceration, situated generally over the tip and edges of the epiglottis and in the neighborhood of the processus vocalis.

The following associated conditions were noted. In eight cases congestion or edema of the lung, pleurisy in four cases, otitis media and pyemia in one case, gangrene of the lungs in one case.

It has been shown that the typhoid bacilli are capable of producing suppuration, either unaided or with the assistance of pyococci. But the bacteriological evidence with reference to the laryngeal lesions of typhoid fever is very incomplete. Doubtless the lesions are caused by micro-organisms, but it is probable that these are pyococci and not, except rarely, the typhoid bacilli.

FORENSIC MEDICINE

UNDER THE CHARGE OF M. D. EWELL, M. D., LL. D.
Dean of the Kent College of Law, Chicago

Irregularities in Trials of the Insane —

The *Kansas Medical Journal* of June 13, 1896, comments on a decision in the Appellate Court of Kansas dealing particularly with irregularities in trials of the insane. Some weeks ago Ida Wellman was placed under arrest on a charge of insanity. She had been left in charge of the home of A. A. Robinson, and her insanity mani-

fested itself particularly in the destruction of property. She had made startling and wonderful alterations in the house, and her plans contemplated further changes which could only have originated in an insane mind. She was arrested in the midst of her proceedings and placed under guard at the house until after the trial. Mrs. Wellman was not present at the trial, the Probate Court ruling that on account of her condition it was best not to have her in attendance. A number of witnesses testified as to the insanity of the accused, the whole history of her strange proceedings and insane talk being gone over a number of times by different witnesses. There was no question in the minds of the jury as to her insanity, and they rendered a verdict in accordance. The substantial correctness of this decision has not been denied by her friends or her attorneys.

Mrs. Wellman, through her attorneys, applied to the Appellate Court for release from the asylum on habeas corpus. The application was granted on the ground that she had not been offered an opportunity to be present or have legal representation at her trial for insanity, and that she was confined prior to the decision declaring her insane, though she was not violent.

We give below the decision as rendered for the court by Judge Garver.

The court had the undoubted right, upon the filing of the information, to direct that Mrs. Wellman be brought before the court. But we know of no authority for the issuance of a warrant for the arrest and imprisonment of a person thus proceeded against, where the only showing made respecting his condition is that he is a lunatic incapable of managing his affairs and a fit person to be committed to the insane asylum.

When it is made to appear that a person is so far disordered in mind as to endanger his own person, or the person or property of others, he may be confined in some suitable place while proceedings are pending and until an order for his restraint is regularly made by the probate court. (G. S. 1889 Secs. 3719, 3720.) Otherwise a person charged with lunacy is entitled to his liberty, until by regular trial in the probate court he has been adjudged to be of unsound mind.

Then for the first time may he be deprived of his liberty and placed in the insane asylum, or in the custody of some proper person as guardian. The discretionary power which the statute (G. S. 1889 Sec. 3609) gives, to cause the person alleged to be of unsound mind to be brought before the court is doubtless for the purpose of aiding the court and the jury in making a just and correct determination of the matters before them. It is a provision made for the benefit of the court, rather than of the party whose mental condition is the subject of inquiry. It is not for restraint.

The statute expressly says that the person alleged to be insane shall the right to be present at the trial to be assisted by counsel.

jurors as in civil cases (G S 1889, Sec 3681) This right is denied unless an opportunity is afforded to be present to exercise it The express granting of the right to appear necessarily implies that notice should be given of the time and place of the hearing, and of the nature of the proceedings to be had Even though the statute made no special provision with reference thereto, we think the same right should exist, with the necessity for notice to the party to be affected by the proceedings Independently of statutes, every person is entitled to his day in court, and to the right to be heard before he can be condemned No mere *ex parte* proceedings can affect either personal or property rights Were the Legislature to attempt to enact a law authorizing judicial proceedings the object of which was to affect the person or property of a citizen, without notice or opportunity to be heard, such legislation would be rejected and repudiated, in advance, as an intolerable outrage upon the rights of the citizen It would not only be a serious infringement of natural rights, but would be a flagrant violation of the constitutional guaranty that no person be deprived of his liberty or property without due process of law

Notice and opportunity to be heard lie at the foundation of all judicial procedure They are fundamental principles of justice which cannot be ignored Without them no citizen would be safe from the machinations of secret tribunals, and the most sane member of the community might be adjudged insane and landed in a mad-house It will not do to say it is useless to serve notice upon an insane person—that it would avail nothing because of his inability to take advantage of it His sanity is the very thing to be tried At the threshold of the inquiry the court is supposed to have no knowledge of his mental condition, but the presumption of the law is in favor of sanity Insanity, like crime, does not exist in law until it is established by evidence in a proper proceeding A trial without notice, a mere *ex parte* proceeding, has no proper place in a court of justice It is a nullity, and void as affecting those not parties to it Actual appearance at the trial is, of course, not necessary There are many cases in which the parties are so mentally disordered that they cannot appear All we mean to decide is that the right to appear must be preserved, and opportunity afforded to do so, in person or by counsel, as far as the circumstances will admit

While this is a case of first impression in this State, the principles involved are not unfamiliar, and the question to be determined has frequently been passed upon by other courts of other States The decisions are not entirely harmonious, but the argument and weight of authority are, in our opinion, with the views herein expressed (Chase *vs* Hathaway, 14 Mass , 222, Eddy *vs* The People, 15 Ill , 386, Shumway *vs* Shumway, 2 Vt , 339, *Ex-parte* Dozier, 4 Baxt (Tenn), 81, Commonwealth *ex rel vs* Kirkbridge, 2 Brewster (Pa) 419, Molton *vs* Henderson, 62 Ala , 426, Norton *vs* Sims, 64 Ga , 298, Martin *vs* Mortsinger, Johnson, 39 W Va)

If a person said to be insane voluntarily appears at the trial, or is brought into court by its order, and is then given an opportunity to resist the charge and to participate in the proceedings, other notice would probably not be essential But when that is not done, notice should be given and opportunity to exercise the right to take part in the trial granted As the petitioner in this case was deprived, without legal cause, of that right, and was given no opportunity for its exercise in the manner contemplated by law, the adjunction against her was null and void Her commitment to the asylum was, therefore, illegal

Castration as a Curative and Preventive of Crime —

J W Frazier (*Texas Medical Journal*, February, 1896) regards crime as a disease which is to be treated like other conditions claiming the therapeutic skill of the medical man, such as chorea, hysteria, and epilepsy. He recognizes that the criminal is often discharged from the reformatory in a more degraded condition than when he entered. Dr Frazier, finding existing methods so inadequate, joins the ranks with Agnew, Everts, Daniel, and others, in recommending castration, which he thinks not only especially appropriate for sexual crimes and perversions but worthy of being rationally extended to a vast category of other crimes, and in some cases added to the punishment already provided. The vicious and depraved of the confirmed and convicted criminal class should be deprived of the capacity to procreate in kind, as a protection to the society of posterity. Then, too, the best interests of the individual criminal are conserved and an opportunity is given to reform. Deprived of his mania to commit offense to his fellows, he is made a living, ever present object lesson to others with like tendencies, and is thus worth more as a moral inhibitory force than a hundred capital punishments or penitentiary convictions usually the talk of a narrow circle for a few days, then relegated to oblivion. The contemplation of a sure castration on conviction would have a much greater deterrent effect on the mind of one who was thinking of doing a willful murder, rape, arson, or robbery, or other grave offense, than the prospect of any other punishment that could be devised.

The writer nevertheless admits that there are many and almost insurmountable obstacles to the introduction of penal castration. In this we agree with him. Such extensive and radical changes often make us think we had better bear with present ills than fly to others that we know not of. Still such discussions have their value, they serve to mould public sentiment, which is slowly advancing to a more enlightened treatment of the criminal classes.

Obligation of Professional Secrecy —

The Kitson Playfair sensational suit continues to receive marked attention from the medical press of this country and England. Such a subject must always be of great interest to physicians. The views expressed regarding this celebrated trial are almost as diverse as the writers.

The *Northwestern Lancet* of June 1, 1896, in commenting editorially, finds the best statement of the case to be that made by a

writer to the *Times*, who maintains that the "knowledge gained by the doctor in the pursuit of his calling is not something confided to him to be used at his own discretion for the best welfare of society in general, but a confidence made to a physician by a patient as simple information furnished for one particular purpose, that is, that the physician may be able to give the disease, be it mental or physical, the best treatment" Here is a definition that may be commended to the medical profession It covers the ground completely and without ambiguity as far as the question of moral obligation is concerned The legal obligations that apply to professional secrecy vary in different countries, and it goes without saying that they *must* be observed, and that there is no breach of confidence in disclosures required by law, such as the notification of contagious diseases, since people have no excuse for not knowing that such laws exist, and when they make their revelations to the doctor they do so with the understanding that he will give the legal notification There are many situations where the physician must exercise his own judgment, but with such a leading principle in mind as that given above he is not likely to go far astray

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears Articles will be illustrated. Authors will be furnished a liberal number of reprints or, if they so elect, an honorarium will be paid for original communications

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ORIGINAL ARTICLES

A CASE OF HERMAPHRODISM (?)

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The following case is interesting not because it can yet be placed on record as one of the extremely small number of true hermaphrodites hitherto proved to be such, but because of the evident mixing-up of the characteristics and features of both sexes, which it presents

The personal history given by the individual is as follows

Paul or Pauline Sheldon (assumed names), who is referred to as "he" or "she" according to the kind of clothing worn by "him" or "her" at the time, was born at Lenox, Mass., May 18, 1868, the father was an American Indian, the mother English. No evidences of sexual peculiarity appeared in any of the four other children of the family. From childhood the subject of this notice assumed the rôle of a female, and did not learn that she was differently constructed until the time of adolescence. Consequently she wore the clothing of the female and her associations were with girls. Yet, with the development of sexual inclinations she found that hers were, oddly enough, directed towards the feminine contingent so that her earlier essays of the sexual act, as well as those since her so-called marriage, were with females. It has never been attempted with the male. After finishing school life at a New York seminary she became a bareback rider in a circus, but, tiring of this,

she settled down to the duties of husbandry (in a sense) and married a woman, with whom she now lives in Chicago

She asserts that since the age of eighteen she has menstruated with a fair degree of regularity This claim I have had no means of confirming She failed to "come 'round" during her sojourn in St Louis She says, however, that the flow appears about once a month, lasts two days, and is accompanied with feelings of malaise, aching in the back and head and sometimes in the breasts

Intercourse is had with the "wife" two or three times a week, and is said to be satisfactory to both parties Pleasure and orgasm are experienced by the individual under discussion, with the oozing from her vagina of a colorless fluid after the act She says she has



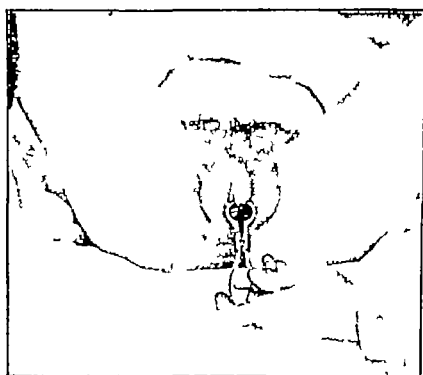
had repeated examinations of this fluid made by capable investigators, with, usually, failure to discover any germinal elements, though on one occasion a few spermatozoa were claimed to be found

The confusion in her anatomical make-up is readily apparent Her hair is long and not coarse, her face is smooth and feminine in contour, the rudiment of hairy fuzz on the upper lip not being pronounced enough to indicate masculinity The outlines of the figure lack the curves of femininity, and the total lack of mammary development shows masculine inclinations for those organs Yet, in opposition to this, the pubic hair grows exactly as it does on the woman, the apex of the pyramid pointing downward, the base upward As to the limbs, the arms are rounded and distinctly effeminate, the thighs masculine, but the feet are small and readily mistakable for those of a woman Height, five feet four inches,

weight, about 146 pounds. The voice is rather low pitched and inclines to the masculine.

The genitals appear embarrassingly confused in their anatomy, and, presenting the features of both sexes, afford the distinctiveness of neither. Since the external parts are plainly shown in the accompanying illustrations, descriptive remarks will be confined to those not appearing.

The penis in flaccidity is $2\frac{1}{2}$ inches long, its circumference at the glans is $2\frac{1}{2}$ inches. It is said to increase much in length (to $4\frac{1}{2}$ inches) in erection. The two separated halves of the scrotum contain testicles of a size larger than that of many men normally



constituted. On pressure they are sensitive and impart the peculiar testicular pain. The hypospadiac division of the scrotum is continued onto the penis, which, in its lack of urethral floor, presents simply a groove on its under surface, leading down to the orifice of the vagina.

The vagina is evidently impractical as a vagina, until it has been held open for a time with a speculum, it will hardly admit an ordinary sized index finger. The speculum, however, readily stretches its circumference to three inches, and its depth is $2\frac{3}{4}$ inches. Its walls are rugated. It appears to end as a blind pouch, and no evidence of uterus or cervix is obtained by either digital or ocular examination. Opening into the roof of the vagina at a point $1\frac{1}{2}$ inches from its orifice, is the meatus urinarius, reddened and very tender to the touch.

Rectal digital examination discloses the existence, just above and posterior to the extremity of the vagina, in juxtaposition with the urethra, probably, of an organ that feels most like a small prostate. It is distinctly bi-lobulated. No evidence of uterus or ovaries can be elicited.



My present estimate of the case is that it is one of male pseudo-hermaphrodisism, with marked features of femininity appertaining thereto. The definite determination of the condition can only be arrived at by post-mortem examination.

THE DIFFERENTIAL DIAGNOSIS OF ASCITES

BY ARTHUR R. EDWARDS, A. M., M. D.

Professor of Therapeutics, Northwestern University Medical School. Attending Physician
Cook County Hospital, Chicago. Pathologist to St. Luke's, Cook County
and Wesley Hospitals.

It is not the object of the following remarks to consider ascites exhaustively, but only to review the subject cursorily and suggestively. By the differential diagnosis of ascites, we mean less the diagnosis of this morbid condition from those simulating it than the differential diagnosis of ascites in *itself*, its significance, interpretation, and possible clinical confusions.

Logically the first step is the determination of the existence, in a given case, of ascites. Before an examination into the possible causes of ascites, we assure ourselves that no condition exists which can be confounded with fluid in the peritoneum.

Although ascites is usually one of the most easily demonstrable physical conditions, yet many excellent clinicians have mistaken it for other affections. Fecal accumulations cause dullness in either flank, simulating fluid, but the history and immobility of the dullness preclude error, if differentiation by enemata and catharsis is employed. I have seen instances in which retention of large quantities of semi-fluid feces in the ascending and the descending colon closely resembled free fluid, in that both mentioned segments of the colon were greatly dilated and the fluid shifted with change of position. Leube confused ascites with an enormously dilated stomach. Hydronephrosis, hydatid cysts, pregnancy, dilated bladder, ovarian cysts, or tympanites, are frequent sources of error.

We can neglect the more salient signs of hydroperitoneum and lay more especial stress upon exceptions. Five hundred to one thousand cubic centimeters of fluid are necessary for clinical detection. With small effusions, one examines the patient in the genu-pectoral position—the best method, according to Leube. Elevation of the buttocks causes scanty fluid to gravitate to the flanks for its easier demonstration. It is not necessary to dilate upon the familiar fact that free fluid gravitates to the lowest parts and that the gas-distended gut is supernatant. Classically, therefore, the fluid in dependent parts gives dullness, and the intestines are located by tympany in the highest parts of the abdomen. According to physical laws these areas must vary with change of position, always giving, in uncomplicated cases, tympany above and dullness below. Since we are emphasizing exceptional clinical characters, this law

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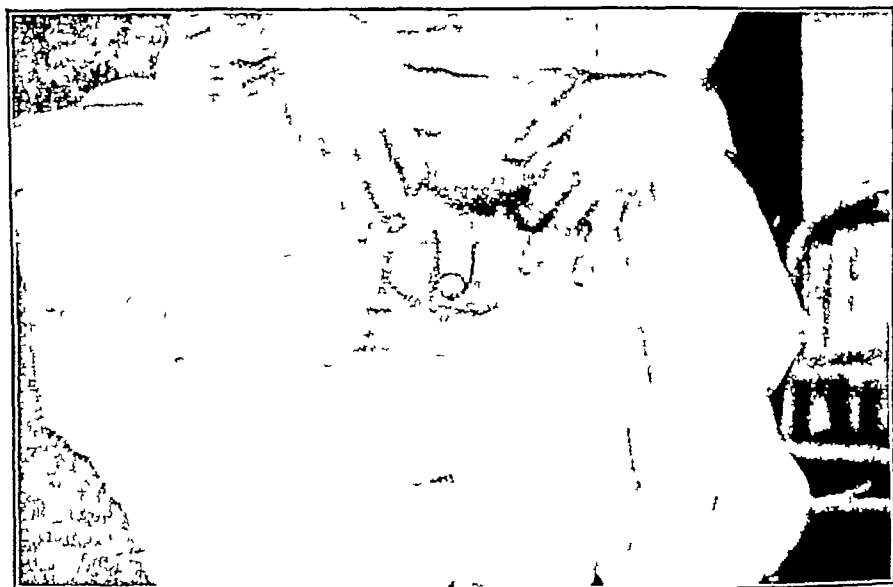
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lapses when the mesentery is retracted and does not allow the gut to float, in which event there is dullness over the highest areas on superficial percussion, though tympany can be elicited on deep percussion over the same area. Adhesions between the intestinal loops defeat shifting of the fluid. Two lines of tympany in the flanks designate the *colones ascendens et descendens*, replaceable by dullness from *scybalæ*. Gut adherent anteriorly determines permanent tympany in that location. I am acquainted with an instance of ascites in which, ignoring this possibility as well as the physical signs, a physician perforated the intestine, happily without unfavorable issue. Physical signs should, then, be the sole guide as to location of abdominal and thoracic paracentesis.

Meadows described permanent tympany in the flanks in ascites due to extensive adhesion of intestinal coils to the lateral abdominal parietes. Edema of the subcutaneous tissue renders percussion of the abdomen difficult, as do fatty abdominal walls, fatty omentum and mesentery. Fluctuation (*ballotement*) due to the transmission of a fluid wave from side to side is usually present, but may be absent because of tense abdominal walls or great fluid accumulations. Pseudo-fluctuation may be caused by accumulation of fluid other than ascitic, as intestinal contents, or by lax abdominal walls—in which latter condition, however, a third hand placed in the median line of the abdomen will break the deceptive wave, due to superficial vibration. The attitude is that observed in pregnancy, and the abdomen resembles that of a batrachian (*ventre de batracien*). The pale, tense, striated, edematous, possibly inflamed skin, indefinite gastro-intestinal symptoms, a pouting navel, the diastasis of the recti muscles, thoracic symptoms, etc., etc., are highly equivocal and *per se* are merely symptoms.

Granting that ascites actually exists in a given instance, the diagnosis is still incomplete, since ascites is but a symptom, if we except the so-called primary or essential ascites of French writers. The first inquiry, logically, relates to the etiology, but the etiological differentiation can be attained only by a process of careful elimination. The rational method endeavors to distinguish between hydroperitoneum (or ascites) and peritonitis effusiva, a separation between which is not, however, always possible since they occasionally occur conjointly.

The best differential schema to follow is, in my judgment, the following:

(A) Is the ascitic accumulation due to a mechanical agency (increased pressure)? Is it then a *hypostatic transudate*?

(B) Is it due to increased permeability of the blood vessel walls? Is it a *cachectic hydrops*?

(C) Is it due to exudation, *inflammation*?

(D) Is the cause some *local peritoneal lesion* other than inflammation?

A

Considering the mechanical question, it is necessary to investigate the condition of each intra thoracic organ. Diseases of the pericardium, myocardium, endocardium and aorta should be definitely determined or positively excluded. Disease in the lungs, pleura, spinal column, diaphragm and mediastinum may cause hydrops peritonei. Excluding disease in the structures enumerated, mechanical stasis in the cava inferior above the liver, in the hepatic vein, in the liver itself, or in the portal vein system, should be considered.

1 Considering the heart, we need not enumerate the various diseases of the organ causing ascites and anasarca, but confine our attention to the hydrops produced by heart disease in the broad sense of the word. In heart disease the hydrops extends *upwards* from the feet, the ankles and legs having been swollen prior to involvement of the peritoneum. In estimating the responsibility of the heart for a given ascites, the physical signs of cardiac disease are invaluable, such as dilatation or hypertrophy of the different heart chambers, accentuation of certain tones, the character of the pulse and its tracings, cardiac murmurs, cyanosis, etc.

Lack of circumspection may lead to diagnosis of essential cardiac alteration when the ascitic fluid merely pushes the heart closer to the chest wall, thus giving a more diffuse apex beat and a larger area of dullness to the left, simulating, as in pregnancy, hypertrophy or dilatation.

In cardiac disease dyspnea usually antedates anasarca and ascites. Secondary dyspnea, due to pressure of an ascites upon the lungs and diaphragm, is secondary chronologically as well as etiologically. Hypostatic hydrops of the serous cavities may exceptionally occur without anasarca, especially in *concretio cordis cum pericardio*.

2 In our etiological search, physical examination of the lungs may be rewarded by finding adequate causal factors, yet here again we must guard against confusion of primary with secondary manifestations. The lungs are often compressed by a large ascites, with evidences thereof in dullness, râles, or even tympanitic resonance,

cyanosis, and dyspnea To reiterate, such symptoms are purely secondary and are not evidences of pulmonary disease The tympanic pulmonary note of compression may obscure findings otherwise strongly suggestive In one instance (case of Drew), for illustration, the tympanic note produced by compression of the lungs by a massive ascites concealed large caseous areas in both the upper lobe apices which would have otherwise materially strengthened a diagnosis of tubercular peritonitis In a recent autopsy upon a case of cirrhosis hepatis cum ascite, the abdominal fluid so compressed the lungs that caseous foci in the upper lobes were overlooked clinically

3 The liver sustains a peculiar etiological intimacy with ascites, since not only does ascites mask the physical signs of the causal element in the liver, but the retrograde venous stasis is most inevitably expressed in this individual form of passive congestion In every instance of ascites we strongly suspect the liver when heart and kidneys are negative The hepatic diseases in which ascites does not usually occur are fatty liver, hypertrophic cirrhosis, abscess, the icterus liver, and echinococcus simplex It generally occurs in cancer, syphilis, amyloidosis, pylephlebitis adhesiva specifica, echinococcus multiplex, hyperemia mechanica, and cirrhosis atrophica

The diagnosis of hepatic cirrhosis, apparently most easy, in reality is most intricate The characters of a portal-vein ascites are, that it commences in the peritoneum almost invariably, and that the legs swell secondarily from pressure on the vena cava inferior This point is a classical criterion, but it is not infallible, since the legs may swell disproportionately, cicatrices or growths may involve the portal vein and cava simultaneously at the notch in posterior surface of liver, and finally the legs may swell first and ascites may remain permanently absent, as in a case observed in the Cook County Hospital two years since

Case (Edwards) ¹—Diagnosis Arterio-sclerosis with secondary cardiac hypertrophy having been diagnosed, there was still an underlying disease which threatened life The findings were few, and the chief interest centred in the greatly dilated veins in the abdomen and legs, which obviously indicated obstruction The argument, diagnostic and pathologic, was to my mind most interesting Was the obstruction intra-thoracic? The venous ectasia was rather too low to favor this construction Was then the return venous flow impeded in the vena cava or in the portal-vein district? No cause could be invoked for the theory that the cava was compressed, there was no tumor, no inflammatory focus, etc., hence attention was directed to the liver There was

¹ Reported in *Journal of the American Medical Association*, June 13, 1896

no real jaundice no ascites, and no splenic tumor yet knowing that a free collateral circulation may prevent or succeed in time a hepatic cirrhosis and that the passive congestion of cirrhosis may in exceptional instances antedate the ascites, the ante mortem diagnosis of hepatic cirrhosis was made

The necropsy findings were in brief Kidneys Surface slightly roughened, capsule freely separable showing no marked naked eye changes, microscopically, some slight arterial alterations and inconsiderable islets of connective tissue change were observed The heart weighed 420 grammes, the left ventricle was 20 millimeters thick and the aorta was somewhat atheromatous. Lungs Some few adhesions in the right pleura, moderate marginal emphysema mechanical hypostasis Spleen Very marked perisplenic changes, explaining the inconsiderable size of the organ compared with liver Liver changes $28 \times 18 \times 18$, $5 \times 8 \times 6$ centimeters, 2000 grammes, surface smooth, no adhesions porta free, the organ was universally red the lobules were centrally fatty and in their periphery exhibited delicate strands of connective tissue Microscopic examination revealed a typical fatty alcoholic cirrhosis without any striking anomalies The gastro-intestinal tract was negative. The peripheral veins conformed to the clinical signs. The vena cava was not compressed not involved in any cicatrix, not the seat of any thrombosis etc. The subperitoneal veins, especially in the right inguinal region were varicose even to bursting The clinical diagnosis of a latent hepatic cirrhosis with collateral circulation sufficient to obviate ascites and splenic tumor, was confirmed

Labadie Lagrave states that pre ascitic edema of the lower extremities may appear as an initial or as an almost isolated symptom of cirrhosis It was first described by MacSweeney in 1876, then by Giovanni, by A Gilbert and H Presle (Thèse de Paris, 1892) While edema as a rule accompanies or follows the ascites, it may antedate the appearance of ascites by months, even a year and a half When it accompanies the first cirrhotic symptoms, it is a sign of diagnostic importance

It may occur not from portal vein stasis alone, but from cicatrices around the cava, cachexia, heart or renal complications

Thierfelder believes the occasionally earlier appearance of anasarca before ascites is often more apparent than real, since edema is better seen by patient and physician alike Such edema may be due to meteorism or fluid pressing upon the cava or iliac veins Bamberger explained edema of the lower extremities in isolated cases by the fact that the pars hepatica of the cava inferior suffered contraction by shrinking of the cirrhotic liver

However, I am convinced that none of the enumerated causes operated in this concrete instance The great collateral circulation opened channels of communication between the vena porta and venæ epigastricæ, by means of which the blood flowed from the latter to the venæ crurales and produced an edema of the lower extremities before a great degree of ascites was present. Monneret

has described an instance in which, by the mechanism suggested, the overfilled epigastric veins produced edema of the abdominal walls

In amyloid liver, ascites results from hydremia rather than from portal-vein obstruction (Bamberger) In abscess it is rare, but may come from sero-fibrinous peritonitis, cachexia, or direct portal-vein compression In cirrhosis it may be absent, from the establishment of an adequate collateral circulation, or death from complications may intervene early before ascites appears Heart and renal complications may be responsible for ascites in some forms of liver cirrhosis An attempt should be made to exclude perihepatitis, which, according to Fagge, causes one death to every five fatal cases of cirrhosis, and is more apt to be attended by albuminuria In the liver of passive congestion, ascites appears only after the ankles are swollen, but ascites is also prone to occur in cyanotic induration of the liver In liver syphilis, ascites occurs not alone when the liver is small It is almost unknown in simple atrophy of the liver It occurs in 50 per cent of liver carcinomata from pressure on the portal vein, periphlebitis, growth of the primary neoplasm into the portal vein, from a weak heart, cachexia, or peritonitis—which in turn may be simple, purulent, or carcinomatous, illustrating one phase of the difficulty in the diagnosis of ascites In pylethrombosis, ascites develops very rapidly, making tapping necessary, and it recurs rapidly Urgent diarrhea and vomiting accompany it, there are copious hemorrhages from the bowels and stomach, the spleen and abdominal veins are not so large, and the liver atrophies

B

May the hydrops be due to increased permeability of the blood-vessels? Such effusions are due to exhausting discharges, suppuration, cholera, marantic conditions, infectious diseases, scurvy, and lastly Bright's disease Renal disease produces ascites which may be difficult to diagnose, since not every instance of albuminuria in ascites is nephritic Albuminuria in cirrhosis is due to pressure on the renal veins, and disappears after paracentesis, a therapeutic means of diagnosis Heart and renal disease may produce hydrops peritonei without anasarca, but we must remember that heart, renal and hepatic disease may be coincident In renal disease the eyelids often become edematous first Cachectic ascites is not uncommon in leukemia and kindred affections Slight serous effusions occurring after acute infectious diseases in children may come under this title

Three instances of ascites after typhoid fever have occurred in Cook County Hospital within the last year. They have all been observed in convalescence, and the absence of any marked pain, rise in the pulse-rate and temperature excluded peritonitis. In one case (Steve K—), as the typhoid temperature curve fell almost to normal, tympany was excessive and fluid developed, but without pain, although some tenderness was present. The temperature was then normal and the pulse 80. Several who saw the case believed it to be peritonitis (appendicitis?), although absence of rectal findings, temperature, rapid pulse and the *facies Hippocratica* seemed to me final evidence to the contrary. Against tubercular peritonitis, operated the findings already mentioned, as well as a negative tuberculin test, splenic tumor and roseolæ (?) The resorption of the fluid justified refusal to operate. The ascites seems to me best explained by alterations in the vessel walls resulting from the febrile state.

C

Is the ascites due to inflammation of the peritoneum—i.e., is it an exudate rather than a transudate? A proper etiology, fever and pain may point to peritonitis. The specific gravity of the aspirated fluid determines whether it is exudative or transudative. Three classes are distinguished.

1. 1.010 specific gravity, or lower, indicates a cachectic transudate, e.g., in nephritis with less than 1 per cent of albumin. A very low specific gravity and percentage of albumin occurs in amyloidosis.

2. A hypostatic transudate has a specific gravity between 1.010 and 1.014.

3. An exudate possesses a specific gravity of more than 1.014 and an albumin percentage of more than 2.5. The lower strata are heavier, and the specific gravity should be taken several times during the paracentesis. When there is less than 1 per cent of albumin, no disease of the peritoneum or portal vein exists. Reuss's formula enables us to compute the albumin percentage from the specific gravity. It is subject to an error of less than one fourth of one per cent.

The percentage of albumin = $\frac{3}{8}$ specific gravity, minus 1000, minus 2.8. A specific gravity of 1.017 to 1.020 positively indicates an exudate. The specific gravity test has been of great value to me in the diagnosis of cases where ascites was associated with hydrothorax or hydropericardium.

French authors assert the existence of a primary or essential

ascites, due to cold, excessive catharsis, drinking freely of water, suppression of menses, or checking of hemorrhoidal bleeding. This so-called essential ascites is usually considered as a chronic serous peritonitis or a tubercular peritonitis, especially when it occurs in children. Henoch believes that a chronic serous peritonitis occurs in children, while West and Courtois-Suffit think such affections are tubercular. Henoch admits that the differentiation between chronic and tubercular peritonitis is often very difficult. In tubercular peritonitis there is usually a rise in temperature, and emaciation, but from the literature cases can be collected in which both are lacking. Bacilli and Koch's reaction may be absent in tubercular peritonitis, while inoculations and cultures are often negative. According to Taprét and Vierordt, chronic non-tubercular peritonitis occurs especially in women, the causes of which, both local and general, concern our subject only in so far as ascites is involved. The general causes are Bright's disease, alcoholism, and heart affections. The ascitic form of non-tubercular peritonitis may pass into the membranous or adhesive variety, the resorption being due to the formation of a collateral circulation in new adhesions, the ultimate stage of which may be peritonitis deformans or pachyperitonitis. Blood in the fluid argues for tuberculosis, carcinoma, or diathetic diseases, as scurvy, or leukemia.

Serous peritonitis is usually chronic and often idiopathic, it is rare, and is accompanied by some fever, increased pulse-rate, and tenderness, while mechanical or cachectic ascites generally has a determinable cause, is relatively frequent, and lacks inflammatory insignia—although the two affections may coexist, *e g* inflammation following paracentesis. Ascites is accompanied by other circulatory disturbances, *e g* splenic tumor, piles, caput medusæ, etc. The spleen may occasionally be enlarged in tubercular peritonitis, or even in simple serous peritonitis. The specific gravity and albumin percentage are almost final in determining between peritonitis and ascites. The fluid is generally clear in ascites, but may be so in peritonitis, in which, however, it is usually cloudy. Alcohol is a cause for chronic serous peritonitis as well as for ascites of cirrhotic origin. The liver is small in the terminal stadium of atrophic cirrhosis, but may be also atrophic in chronic serous peritonitis, according to Frerichs. The vascular dilatation is above the navel in cirrhosis, but below it in serous peritonitis, as Lancereaux first remarked. In tubercular peritonitis the venous enlargement is disposed as in cirrhosis hepatis. Cirrhosis of the liver is signalized by various urinary changes evidencing incomplete discharge of hepatic

functions There is a sedimentum lateritium, bile pigment, hepatogenous peptonuria, or hepatic glycosuria In tubercular peritonitis there is a hydrops ascites saccatus, giving an irregular form to the abdomen from meteorism produced by adhesions, and irregular nodules simulating carcinoma In children, fluid may accumulate between the layers of the omentum Hemorrhagic ascitic fluid occurs frequently in tubercular peritonitis, and rarely, if ever, in cirrhotic transudate, unless the latter is complicated with tubercular peritonitis, engrafted as a frequent complication upon the already altered peritoneum, as a *locus minoris resistentiæ* In the last-mentioned combination, and under other circumstances, free ascitic fluid may exist simultaneously with ensacculated effusions Intestinal or pulmonary tuberculosis, adhesive pleuritis, and meteorism from intestinal adhesions, or an irregular form of the abdomen with a doughy feel on palpation, speak for tubercular peritonitis In differentiating between tubercular and carcinomatous peritonitis, the clinical course in neoplasm is relatively more rapid That paracentesis in carcinomatous peritonitis hastens the fatal issue may, unfortunately, be of diagnostic value

Rivalta¹ calls attention to Primavera's method of differentiating between transudates and exudates by means of glacial acetic acid A single drop will leave a white cloud as it falls to the bottom of a vessel containing an exudate, while addition to transudates gives no reaction

D

Is the ascites due to local disease of the peritoneum or to sub-peritoneal affections, other than inflammation? Above other causes, tumors demand early consideration Miliary tuberculosis of the peritoneum, as distinguished from tubercular peritonitis, may cause a hydrops which is not inflammatory Carcinosis of the peritoneum causes hemorrhagic or purely serous transudates, demanding distinct differentiation from genuine carcinomatous peritonitis in which the specific gravity may rise to 1.020 or 1.022 Literature contains no reference to practical clinical separation of carcinosis of the peritoneum and carcinomatous peritonitis In carcinomatous peritonitis nodules appear, but I have made autopsies upon cases in which tumors in the abdomen did not preclude a clinical *intra vitam* diagnosis of tubercular peritonitis, with post mortem confirmation

In a case of adipose ascites of tubercular origin, reported by the writer,² there were tumors of considerable size which were recog-

¹ *Riforma Medica* No 96 1895.

² Chylous and Adipose Ascites MEDICINE, August 1895.

nized clinically and might have been confused with genuine neoplasm. A second instance of tubercular masses resembling an actual tumor, in which the clinical diagnosis was made, is the following.

The patient was a Swede, aged 36, from whom little history could be elicited except that for three months he had emaciated, lost muscular power, and suffered from intestinal irregularities. His urine was negative. The thorax was negative except for complete synechia of the right pleural cavity—a point of differential value in considering tubercular, *versus* carcinomatous, peritonitis. He was emaciated and the skin was dry. The relative prominence of the abdomen contrasted with the thin arms and legs and narrow thorax. There was tympany in both flanks, as a fairly wide zone—and over the entire antero-mesial portion of the abdomen absolute flatness—was found. On palpation a marked resistance existed which was not muscular. The flatness did not change with position, and a trocar introduced into its midst gave a sanguineous fluid of 1.022 specific gravity, and hence 5.4 per cent albumin. The temperature ranged between 99° and 101.6°. Rectal exploration determined a large, broad, hard nodular mass in the right inguinal region, which was not in the rectal wall but beyond and separate from it. The localized peritonitis, bloody serum and progressive cachexia suggested neoplasm, but the old pleural adhesions, the temperature and localized peritonitis, collectively considered, also warranted a diagnosis of tubercular peritonitis, against which the hard extensive nodular character of the formation found per rectum did not successfully contend, insomuch as, in the case of adipose ascites already mentioned, large, hard, tumor-like masses in the same region were proved at autopsy to be relics of an ancient caseated tubercular exudate.

The autopsy by Dr. Ludvig Hektoen proved that the pseudo-neoplasm was tubercular peritonitis with very thick exudate and massive adhesions, confirming the clinical diagnosis.

Large cells with mitoses in the nuclear protoplasm have been found by Rieder¹ in carcinoma peritonei.

Tumors other than peritoneal cause ascites. Uterine fibromata produce hydroperitoneum which is not usually great, is lemon-colored and but rarely sanguineous. There is no relation between the size of the tumor and the amount of fluid transuded, since very small uterine myo-fibromata may excite considerable peritoneal effusion. There is, nevertheless, a direct relation between the malignancy of the tumor and the amount of the fluid found (Terillon).

¹ *Deutsches Archiv für Klinische Medizin*, band 54, heft 6

Ascites is most frequent in adeno-myoma (Freund) According to Pozzi, ascites is rare in ovarian cysts, yet Terrier observed it in 35 per cent of his cases It is seen mostly in papillomatous cysts which grow external to the cyst, sometimes with peritoneal metastases In glandular cysts whose walls rupture by fatty degeneration and pour out their contents into the abdominal cavity, serum is secreted by the peritoneal surface because of the irritation, even though the ruptured cyst be very small (Quinu) The fluid contained in cysts contains more solids (60 to 70 per mille) than does the ascites, *e g*, of renal disease (25 per mille—Méhén) Championnier never saw an ovarian cyst complicated with ascites recover, although Pozzi writes that his experience must be regarded as exceptional In a case of sarcoma of the ovary (Mrs C—), successfully removed by Dr J B Murphy, an ascites existed which disappeared after the operation and has remained absent for a year The interesting point in this case was the *simple* peritonitis, with effusion of an exudate whose specific gravity was 1.024 That the exudate was not due to malignant peritonitis, is proven by the non recurrence of the disease anywhere in the abdomen and by the permanent absence of ascites

RECAPITULATION

- 1 Given an instance of abdominal tumor in the broadest sense of that word, is it gas, fluid, or solid?
- 2 If the fluid is intra peritoneal, is it free, immovable, or both?
- 3 May anomalous symptoms and signs be explained by exceptions recognized as occurring in ascites?
- 4 Is it an essential, primary, or idiopathic ascites?
- 5 Can mechanical vascular stasis, extra peritoneally or intra peritoneally located, account for the effusion?
- 6 May cachexia, weakening the vessel walls, be the cause?
- 7 Is there peritoneal inflammation, primary or secondary?
- 8 May some local peritoneal or subperitoneal disease irritate the peritoneum?
- 9 Is the determined cause a final, ultimate cause, or is it itself secondary?

THE LUMBAR ENLARGEMENT OF THE SPINAL CORD, CONSIDERED IN REGARD TO LOCALIZATION OF LESIONS AND ITS AMENABILITY TO SURGICAL INTERFERENCE ¹

BY L. HARRISON METTLER, A M, M D, CHICAGO, ILL

Upon a basis of six cases, Volentini² asserts that a diseased condition of the spinal cord above the second lumbar vertebra offers a very unfavorable prognosis, and that the outlook is more reassuring if the lesion is localized lower down, unless perchance a malignant growth be present. While surgical interference is to-day justifiable in many localized affections of the cord, it procures the happiest results when it is called for and practiced upon the lower part, the region of the lumbar enlargement and cauda equina. In lesions of the cauda, such as fractures, hemorrhages, and abscesses, and perhaps some tumors, trephining is not only commendable but is absolutely demanded. With reference to trephining in lesions of the cauda, Thorburn³ lays down as the first of three important axioms that there be absolute certainty of the localization. A careful study, therefore, of the localization symptoms of the lower part of the cord cannot be too often undertaken.

A few words in regard to the anatomical relations of the lumbar spine will be in keeping, before I proceed to the consideration of the medullary structures. Many of the following facts I confirmed while assistant prosector at the Jefferson Medical College and assistant to the chair of anatomy at the Medico-Chirurgical College of Philadelphia. The upper limit of the lumbar enlargement lies in front of the tenth dorsal vertebra, its maximum width coincides with the twelfth dorsal vertebra, from thence it gradually diminishes in size until it terminates in the extremity of the cord, known as the conus medullaris, opposite the upper border of the second lumbar vertebra. The movement of both the cervical and lumbar enlargements is comparatively free and unrestricted, since the cord fills the spinal canal less completely at these points than elsewhere. For diagnostic purposes the cord is sometimes regarded as a series of superimposed segments, each segment having attached to it a pair of spinal nerves which innervate laterally certain definite and corresponding areas of the body. Since the cord does not grow as

¹ Read before the Mississippi Valley Medical Association, at St Paul, Minn. September 15-18, 1896.

² *Zeitschrift für Klinische Medicin* 1893, v. 22

³ *Brain*, January 1888

rapidly as the spinal column, and therefore occupies in the adult only about two thirds of the entire length of the spinal canal, it follows that the segments do not all lie within the osseous vertebral rings of the same name. The lumbar enlargement is made up of the twelfth dorsal, the first, second, third, fourth and fifth lumbar segments, the first, second, third, fourth and fifth sacral segments, and the coccygeal termination. In localizing a lesion in the spinal cord, therefore, it is imperative to remember the precise relations of the vertebral spines to the corresponding bodies of the vertebræ, and the relations of those bodies to the corresponding segments of the cord. I say it is imperative to remember these relationships, for Starr¹ mentions two cases of spinal tumor which had undergone operation but in which the tumor was not found, because the incision was made at a level below it. The tips of the tenth and eleventh dorsal spines are opposite the upper borders of the respective succeeding vertebræ, while the spines of the lumbar vertebræ are all opposite the bodies of their own respective vertebræ. Beneath the tenth dorsal spine, at which point the lumbar enlargement begins, will be found the upper part of the body of the eleventh dorsal vertebra, and within that part of the canal the twelfth dorsal segment of the cord. Beneath the eleventh dorsal spine lies the upper border of the body of the twelfth dorsal vertebra, and opposite it, within the canal, the first lumbar segment. The twelfth dorsal spine projects over the upper border of the body of the first lumbar vertebra, and covers the second, third, fourth and fifth lumbar segments. The first lumbar spine indicates very closely the situation and extent of the first lumbar vertebra, which encloses the first, second, third, fourth and fifth sacral segments. Under the upper edge of the second lumbar spine and corresponding vertebral body is the coccygeal segment. It will thus be noticed that the various segments constituting the lumbar enlargement rapidly diminish in size as the end of the cord is approached, so that a number of them are found within a single vertebral ring.

More important than the location of the spinal segments with reference to the vertebræ and their spines, is the point of exit of the various segmental pairs of nerves with reference to the vertebræ and the segments themselves. The nerves from the lumbar enlargement pass farther and farther downward and obliquely until those that are attached to the lowermost part of the cord traverse a long distance within the spinal canal, collectively constituting the cauda equina, before they emerge from their appropriate foramina.

¹ *American Journal of the Medical Sciences* June, 1895 p. 632.

Though this is a well known anatomical fact, it is of the most vital significance in a localization diagnosis. While as yet it is extremely difficult to differentiate lesions of the lower cord from those of the cauda that happen to involve the same nerve-roots, recent investigations hold out the hope that ere long it will not be impossible to do so in all cases. Mills¹ says that "One of the most important and most available positions for successful spinal surgery, in cases of localized lesion, is the region of the cauda equina." Were it possible to diagnose the exact site of a small lesion, involving the fifth sacral nerves at their point of emergence near the tip of the sacrum, and differentiate it from a lesion involving the same nerves at their origin in the fifth sacral segment behind the second lumbar spine, an invaluable advance would have been made in behalf of the surgery of this part of the cord. Indeed, there are faint indications, gathered from a few closely studied cases with autopsies, that it may be possible when we have come into possession of more facts.

As compared with cerebral localizations, physiology has done less than clinico-pathology in affording us knowledge in regard to spinal-cord localizations. Tumors have been a most effective means by which we have gained our present information. Up to June, 1895, Starr² had collected 123 cases of tumor of the spinal cord, from which many localization facts have been deduced. "In 100 of these cases the history is fairly satisfactory, and in the light of our present knowledge a diagnosis of the disease should have been quite clear some time before death. In fifty-four cases it should have been possible to reach not only a diagnosis of the case, but also a conclusion as to the feasibility of an operation. Studying the cases from a pathological standpoint, I find of the one hundred cases there were seventy-five in which the tumor could have been removed." If so favorable an outlook may be taken in regard to the whole cord (as it is of this that Starr is speaking), how much more favorable may the outlook be when only that part of the cord is concerned which is the most amenable to surgical interference! Other lesions than tumors have occasionally pointed out or confirmed the location of special spinal centres. My own case,³ presented to the Neurological Section of the American Medical Association in 1893, was in all probability a hemorrhagic clot compressing certain nerve-roots and medullary areas, and though its symptomatology clearly indicated certain facts of localization, its

¹ "Spinal Localization in its Practical Relations," *Therapeutic Gazette*, May, 1889

² *American Journal of the Medical Sciences*, June, 1895

³ *Journal of the American Medical Association*, September, 1893

value was greatly diminished on account of the want of a confirmatory autopsy, the patient having recovered after nearly a year's interval of complete hemiparaplegia. The systematic degenerative diseases followed by careful post mortem examinations have pretty clearly revealed to us the various tracts of the cord and their functions.

The principal lesions for which trephining may be recommended are tumors, fractures, dislocations, hemorrhage, abscess, caries, and possibly some forms of chronic or subacute myelitis, hypertrophic internal pachymeningitis, and neuralgia of one or more of the spinal nerves. Some of these lesions are, of course, extra meningeal, others are subdural, some are subarachnoid, and still others are entirely within the cord itself or intra spinal. Obviously, therefore, these lesions may manifest themselves through symptoms of pressure upon the cord, such as pain, spasm, tremor, paresthesia, etc., or through symptoms of destruction of the medullary substance, such as complete paralysis of motion and sensation. Usually an extra spinal lesion, or one that is wholly outside of the cord proper, involves sooner or later absolute damage to the cord elements, and, *vice versa*, a tumor or other affection of the cord will in a given time spread outward and produce meningitis and disease of the bones. Hence the extra- or intra spinal nature of the lesion, while of some consequence, is of less importance from the standpoint of localization than is its extent longitudinally or transversely in regard to the cord.

A tumor or a dislocation is apt to exhibit better localizing symptoms, on account of its sharper definition, than a hemorrhage or a meningitis. A neuralgia of one or more spinal nerves, due to some central cause, is a more accurate guide for segmental localization than would be, for instance, a myelitis of even the transverse variety. Well defined, small lesions afford better indications for localization diagnosis than do indefinite, diffuse lesions, and those which are more or less transverse, involving one or more segments of the cord, with bilateral symptoms, give rise to less confusion than do longitudinal, systematic lesions. These statements seem trite, but the principles underlying them are of the greatest importance, not only in localizing, but also in diagnosing the probable nature of the lesion from the character and mode of extension of the localizing symptoms.

A transverse section of the cord through the lumbar enlargement reveals the same picture, with very slight variation, that a transverse section of any other part of the cord does. The gray

matter is relatively more abundant than in other parts of the cord, but the arrangement of the various tracts is about the same as elsewhere. The definition and uses of these tracts has been the chief work accomplished by physiology in regard to spinal-cord localizations. On either side of the posterior median fissure lie the columns of Goll, and next to them Burdach's columns or the "posterior root-zones" of Charcot. Goll's columns transmit, in all probability, tactile impressions, while ordinary sensory impressions are conducted upward through the columns of Burdach. The sensations of heat and pain, according to Schiff and Gowers,¹ traverse the lateral columns. In syringomyelia these sensations are lost because of the compression exerted, so these authorities say, upon the lateral tracts. On the other hand, Dejerine,² following Brown-Séquard's view, teaches that the sensory tract for heat and pain is the central gray matter which is destroyed in this disease.

Laterally adjacent to the posterior columns are the posterior cornua, with the posterior root-fibres to the inner side of them. The white matter of the cord, reaching from the posterior to the anterior cornua, is sometimes grossly spoken of as the lateral column. In the lumbar enlargement this consists posteriorly of the crossed pyramidal column and anteriorly of the true lateral column. In animals, but not yet in man, a small column has been demonstrated by Woroschiloff and Ott, deeply imbedded in the anterior part of the lateral columns. The direct cerebellar tract does not appear in the lumbar enlargement. Those who do not follow the teachings of the older physiologists—that the sensations of heat and pain are transmitted by the central gray substance—and who cannot regard the sensory cerebellar tract as their means of transmission on account of its non-existence in the lower part of the cord, believe that these sensations travel up the columns of Woroschiloff, which in animals have proved to be sensory in function. Like the direct cerebellar tract, with which it seems to bear some connection, the vesicular column of Clarke is wanting in the lumbar region. The crossed pyramidal tracts conduct motor impulses from the brain to all parts of the body below the arms. The true or anterior lateral columns probably contain fibres which connect the gray matter at different levels—in other words, longitudinal commissural fibres.

Passing on round the circumference of the cord anteriorly, we next meet the anterior root-fibres, and between them, divided by the anterior median fissure, the two anterior columns or anterior

¹ Diseases of the Nervous System. Gowers. American edition, page 144.

² "Syringomyelia. Report of a Lecture by Dejerine at the Bicêtre, with Further Remarks by Mettler," *Times and Register*, New York and Philadelphia, July 20, 1889.

root zones of Charcot The direct pyramidal tract, or Turck's columns, which appear in other parts of the cord immediately on either side of the anterior median fissure, are absent in the lumbar enlargement The function of the anterior root zone is to connect with longitudinal commissural fibres the anterior horns at different levels, and also by means of transverse commissural fibres the anterior horns of the two sides at the same or different levels It is evident that a knowledge of the location and function of these columns of the spinal cord enables the diagnostician to locate the site of the lesion as well as the direction of its extension Longitudinal lesions limited to one or more tracts of the cord are rarely confined to so small a part as the lumbar enlargement Symptoms indicating, therefore, implication of the tracts in the lumbar enlargement, are scarcely ever of much value, unless they are associated with corresponding symptoms pointing to a corresponding or contiguous lesion in the adjoining parts of the cord Posterior spinal sclerosis, for instance, very often begins in the lumbar enlargement, and it is a progressive systematic disease, but the symptoms of it depending upon the involvement of so limited a part of the posterior columns as is included in the lumbar enlargement are of positive significance only when associated with other localizing signs indicating an extension of the disease along the same tracts into the higher parts of the cord In the absence of other symptoms, the early loss of the patellar reflex, the priapism, or the fulgurating pains along the lumbar spinal nerves, are open to various interpretations For this reason the early diagnosis of some forms of locomotor ataxia cannot be more than probable

Lesions of the lumbar enlargement, however, that are more or less confined to the tracts, are sometimes capable of partial localization For example, a motor paralysis of a given area of the legs, with the preservation of all sensibility, would indicate that the lesion was somewhere in the anterior part of the lumbar enlargement and not in the posterior part, if it were in that part of the cord at all Various paresthesias limited to the peripheral distribution of one or more of the nerves of the lumbar plexus, with absence of all signs of motor disturbance, would lead to a suspicion that a tumor or other extra spinal lesion was compressing and irritating the posterior part of the enlargement and not the anterior

Those symptoms which assist the physician in making a diagnosis of the transverse or segmental site of the lesion are usually the most satisfactory and conclusive Such a diagnosis presupposes an exact knowledge of the relationship of the segments that constitute

the lumbar enlargement, the origin, course, and termination of the nerves given off by those segments, the exact site of the reflex and visceral centres, as of the bladder, rectal and sexual functions, and certain trophic and vaso-motor manifestations and their significance. The greater part of our knowledge in this respect has been obtained by clinico-pathological observation, though much has also been obtained through the physiological experiments of Ferrier, Yeo, and others.

Morphology, embryology and physiology have all contributed to the establishment of the fact that groups of muscles rather than single muscles are represented in the segmental centres of the cord. In other words, movements rather than anatomical divisions of the musculature are the physiological indicators of the segmental localizations in the spinal cord. As in the amphioxus, each spinal segment in man is a kind of miniature brain, presiding through its nerve-root extensions over the adjacent and correlated parts of the body. When the legs are placed in their embryological position in relation to the body, and not as evolution has caused them to be placed in the fully developed creature, it is seen that those muscles and cutaneous areas which are directed forward (pre-axial) are under the control of nerves from the highest (frontad) lumbar segments. A knowledge, therefore, of the morphology of the podalic extremity, of the morphological arrangement of its muscular masses, is of the greatest assistance in understanding the value of particular forms of local paralysis, contracture, spasm and tremor, in indicating the particular segment of the lumbar enlargement involved. It must not be imagined in this connection, however, that there is a strict horizontal correspondence between the nerve-roots and the related nerve-cells of the anterior cornua, for it is highly probable that some of the anterior root-fibres enter the antero-lateral white columns, connecting with nerve-cells at a higher or lower level than that at which they leave the cord. The iliacus and psoas muscles, for example, are one in function, though distinct and separate anatomically. They are both represented, therefore, by centres in the second and third lumbar segments, the group of cells with which they are connected extending through both segments. The necessity of regarding muscular function rather than mere individual muscles in localization is further impressed by the fact that some muscles have a double function and that probably none of them ever act without a corresponding and simultaneous action on the part of their antagonists. For instance, the gastrocnemius may be either a flexor of the knee or an extensor of the ankle, according to the

action of its opposing muscles, the lower part of the gluteus maximus functionates as an adductor of the thigh and external rotator while the upper part serves as an abductor. All of which proves that definite movements rather than the anatomical muscular divisions are related to particular groups of spinal nerve-cells, and that a single group of cells may be involved in more than one associated movement. Doubtless the different groups of cells are also intimately connected with one another, which would again indicate the extreme importance of studying muscular function rather than mere muscles in making a localization diagnosis.

As a general rule, it may be affirmed that corresponding sensory and motor branches from the same spinal nerve root supply corresponding muscular masses and cutaneous areas. Certain cutaneous reflexes have their spinal expression in the same cord segment in which the muscles underlying the said cutaneous areas have the origin of their respective motor nerves. Here again, it must be repeated, groups of muscles and not individual muscles are to be considered. The cremasteric reflex, for example, is represented in the first, second and third lumbar segments, while the related muscular mass, consisting largely of the ilio-psoas, sartorius, rectus, quadriceps, and parts of other muscles, is found to be under the control of the same spinal segments. The point I am trying briefly to insist upon is that particular muscles, particular reflexes and particular sensory areas are not limited absolutely to the control of one individual spinal segment. There are many details in regard to this conception of the relation of the spinal segments to the corresponding parts of the body, that are in need of much further elucidation, but the later observations in physiology and clinico-pathology seem nevertheless to demand this view of the matter. The following muscles or muscular groups, and their central representation in the lower cord, are associated, according to the latest observations.

Cremaster, second lumbar segment

Psoas, second lumbar segment

Iliacus, third lumbar segment. As stated before, the iliacus and psoas are the same in function, so that their representation is better expressed in the combined segments, second and third lumbar.

Adductors, fourth lumbar segment.

Gluteals (extensors), fourth and fifth lumbar segments

Extensors of the knee, third and fourth lumbar segments

Sartorius, third lumbar segment. The sartorius is not an extensor of the knee. In paralysis and atrophy of the extensors it generally escapes. Hence, though represented in the third lumbar

segment, it probably has its own group of cells. It affords the most perfect illustration of the necessity of studying the function of muscles rather than individual muscles in segmental localizations. Its centre is probably lower, but is certainly distinct from the centre for the extensors.

Muscles of lower leg, fourth and fifth lumbar and first sacral segments

Intrinsic muscles of the foot, second sacral segment

The general position of these centres is analogous to the corresponding centres in the cervical enlargement for the muscles of the upper extremity.

Comparing the centres for the cutaneous reflexes with those of the related muscles, it will be observed that a remarkable correspondence obtains. Thus

Plantar reflex second sacral segment

Gluteal fourth lumbar segment

Cremasteric second lumbar segment

Foot clonus fifth lumbar and first sacral

Knee-jerk third and fourth lumbar

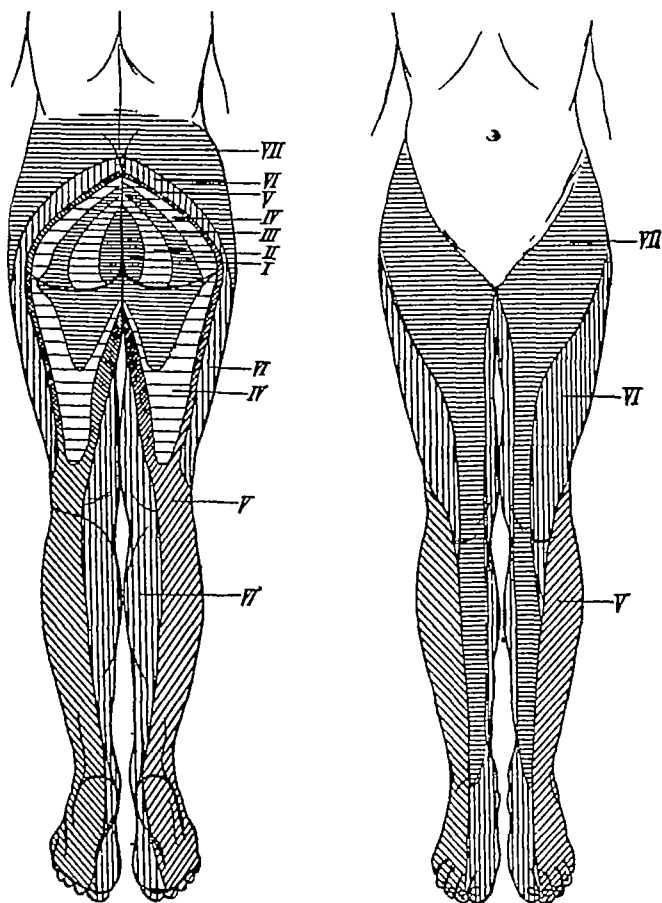
Though sensory disturbances have been generally less studied than motor, they have afforded us equally if not more important information in regard to the segmental localizations in the cord. The work of Starr, of New York, in this connection is deserving of special commendation. By a most painstaking study of cases of his own, and of others found in literature, he has been able to formulate facts and to outline with remarkable accuracy the sensory areas of the body under the control of special spinal segments of the lumbar enlargement. His diagram¹ indicates, far better than words can, the progressive enlargement of the anesthetic area of the skin, with the gradual extension of the lesion from the fifth sacral segment upward, and I therefore take the liberty of presenting it here.

In all these areas of anesthesia, the insensibility includes the genitals, the perineum, and the anus.

The centres for the control of the bladder and rectum are usually affected together, and would thus appear to be in close proximity. They probably are imbedded in the last two segments of the cord. In destruction of these segments, as proved by a few autopsies,² the rectal sphincter is completely relaxed and the rectum itself is without its normal power of contraction. The vesical sphincter is never permanently relaxed, but the bladder is fre-

¹ *Vide American Journal of the Medical Sciences* for July 1892 and June 1895.

² *Vide* case of special interest reported by Sarbo (Budapest), *Archiv für Psychiatrie und Nervenkrankheiten*, Berlin, v. 25, No. 2.



—From Starr

Areas of anesthesia in lesions at various levels of the spinal cord from the fifth sacral to the second lumbar segment

I Sacral v
II Sacral iv
III Sacral iii

III Lumbar ii.

IV Sacral i.
I Lumbar v
II Lumbar iii.

quently emptied without the patient's knowledge. The sexual centre is in all probability associated with the vesical and rectal centres.

Certain vaso-motor and trophic disturbances sometimes accompany myelitis of the lumbar cord. It is only, however, in gross and extensive lesions, as a rule, that these symptoms make their early appearance, because they are dependent upon injury of the central gray matter just back of the central canal.

The following table, taken from Starr and slightly modified by Mills, presents in a condensed form the main facts in regard to lumbar localizations as I have endeavored to explain them.

Segment.	Muscles	Reflex.	Sensation
First lumbar ..	Ilio-psoas Rectus Sartorius	<i>Cremasteric</i> (first to third lumbar) stroking inner thigh causes retraction of scrotum	Skin over groin and front of scrotum (Ilio-hypogastric, ilio-inguinal)
Second lumbar	Ilio-psoas Sartorius Quadriceps femoris	<i>Patella</i> stroking patella tendon causes extension of leg	Outer side of thigh (Genito-crural, external cutaneous)
Third lumbar	Quadriceps femoris Anterior part of biceps Inner rotators of thigh Abductors of thigh		Front of thigh (Middle cutaneous, internal cutaneous, long saphenous, obturator)
Fourth lumbar	Abductors of thigh Adductors of thigh Flexors of knee. Tibialis anticus Peroneus longus	<i>Gluteal</i> (fourth to fifth lumbar) stroking buttock causes dimpling in fold of buttock	Inner side of thigh, leg and foot (Internal cutaneous, long saphenous, obturator)
Fifth lumbar	Outward rotators Flexors of knee Flexors of ankle Peronei Extensors of toes	<i>Achilles tendon</i> over-extension causes rapid flexion of ankle, called ankle clonus	Back and outer side of leg and ankle sole, dorsum of foot. (External popliteal, external saphenous, musculo cutaneous plantar)
First and second sacral	Flexors of ankle Extensors of ankle Long flexor of toes Intrinsic foot muscles	<i>Plantar</i> (fifth lumbar to second sacral) tickling sole of foot causes flexion of toes and retraction of leg	Back and outer side of leg and ankle, sole, dorsum of foot. (Same as fifth lumbar)
Third, fourth and fifth sacral.	Perineal Muscles of bladder, rectum, and external genitals	Vesical centres Anal centres	Back of thigh anus, perineum, external genitals (Small sciatic, pudic, inferior hemorrhoidal inferior pudendal.)
Fifth sacral and coccygeal..	Coccygeus muscle		Skin about the anus and coccyx. (Coccygeal)

ON THE IMPORTANCE OF PHYSICAL SIGNS OTHER THAN MUR- MUR IN THE DIAGNOSIS OF VALVULAR DISEASES OF THE HEART ¹

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Most of the standard text books on medicine teach, with more or less clearness, that an endocardial murmur is not, of necessity, evidence of a valvular lesion, and also that a valvular defect may exist and still no murmur be audible. Skoda, Oppolzer, Walshe, Flint and others of the preceding generation plainly recognized these two facts. Yet, in spite of this teaching, it is a not uncommon practice for the diagnostician to overlook other evidences of valvular disease, and to base his conclusion solely upon the presence or absence of an endocardial murmur. This is as illogical as it would be to diagnose scarlatina on the presence of an erythematous rash, disregarding entirely the temperature, the throat, the tongue, the glands, exposure, etc. or to declare that a given case could not be scarlatina because the rash was not present, though temperature, throat, glands, pulse and tongue all gave evidence of the disease.

For, while it is usually the case that with a valvular disease there is a murmur, yet occasionally the lesion is latent and without murmur, and not infrequently a previously existing murmur disappears as myocardial weakness develops (as from myocardial disease or toward the end of life), or the individuality or peculiar characteristics of the murmur are lost to the listening ear in rapid or tumultuous heart's action, pericardial or pleural rubs, or tracheal, bronchial, or pulmonary noises. To recognize the valvular lesion under these circumstances one has to rely on something besides the murmur. And again, while there is commonly but little difficulty in recognizing a murmur as functional or accidental, it being basic, systolic, neither loud nor musical, and transmitted but slightly from the pulmonary area, at other times these murmurs are more widely diffused, are loud, even musical, accompanied by a thrill, and may even be diastolic. Here, therefore, the differential diagnosis can only be made by a careful examination of the heart and vessels as a whole. One must rely upon other findings than the murmur to determine the important question as to whether or not a valvular

¹ Read in abstract at the meeting of the Mississippi Valley Medical Association, St. Paul, September 16, 1896.

lesion is present. In some doubtful cases the therapeutic test of rest, iron, digitalis, will be of great aid in clearing up a diagnosis.

It is the object of this paper to emphasize the value of paying attention to signs other than the murmur, and to show that, while of great aid in diagnosis, the endocardial murmur can only be estimated at its true worth when considered in the light of the other physical findings.

It is important in this connection to keep clearly in mind certain pathological consequences of valvular lesion. For it is as much by the recognition of these changes in the anatomical or physiological conditions of the circulatory apparatus, as by the murmur, that the presence or absence of a valvular disease can be predicated.

1 Every valvular lesion, whether of obstruction or insufficiency, must result in hypertrophy and dilatation of the heart behind (as regards the blood-current) the valve diseased. Hypertrophy of some portion of the heart, therefore, may be one of the strongest evidences of valvular disease in front of the hypertrophy. Absence of hypertrophy may prove a murmur functional or accidental.

2 An increase in the tension of the pulmonary circulation follows any valvular lesion (in reality an obstruction) at the mitral orifice. Later, also, any aortic disease will produce the same result. Increased pulmonary tension shows in increased force and intensity of the pulmonic second tone, a point first emphasized by Skoda. Yet, later, a failing right ventricle may cause lowering of pulmonic pressure and therefore weak pulmonic second tone. Nowhere is the value of examination of the pulmonic valvular sound more clearly shown than in mitral stenosis, where, not infrequently, the murmur is absent. Here the snappy, intense pulmonic second shows in striking contrast to the aortic second that is weak because of low systemic arterial tension, and this may be the convincing diagnostic sign of mitral obstruction.

3 Stenosis of the orifices of the left heart means smaller amount of blood in the general arterial circulation, and therefore lessened arterial tension as shown by the pulse. The small pulse of aortic or mitral stenosis illustrates this point.

4 Failure of the right heart is followed by general venous congestion with varying phenomena, *e g* venous pulse, hepatic and general portal congestion, anasarca of the lower portion of the body.

If the examiner keeps these facts clearly in mind, he will find much more than the murmur to seek for. He will, in fact, defer auscultation until the last, and will aim by inspection, palpation and

percussion to learn what he can of the size of the heart and its method of work.

Inspection —Hypertrophy of the left heart is commonly recognized by the heaving, forcible apex impulse. The massive hypertrophy of aortic disease, with heaving apex far to the left and downward, may lead one to suspect the valve diseased, even on inspection, and, by noting the peripheral pulse and the frequency of beat, a regurgitant or obstructive lesion may be surmised. The closure of the pulmonary semilunars occasionally causes a perceptible impulse when the overlying lung is retracted or pushed aside by an enlarged heart and when the force of the semilunar closure is exaggerated. An enlarged right heart may also produce a diffused impulse between the sternum and left nipple, and epigastric pulsation is rightly regarded as of great value as an indication of right-heart dilatation. A failing right heart with incompetent tricuspid means not alone epigastric pulsation, but a true ventricular, systolic, positive, jugular pulse. And not infrequently hepatic pulse, to be distinguished from the communicated hepatic heaving, is an accompaniment of tricuspid insufficiency. Even the peripheral veins may, from a similar cause, show pulsation.

The behavior of the arteries in valvular lesions is of great diagnostic value, particularly in aortic regurgitation. In fact, it is no great feat to make a diagnosis of aortic regurgitation by inspection alone, or by inspection and palpation. The suddenly overfilled, bounding, tortuous arteries, which as suddenly collapse, taken with the signs of enlarged left heart, and perhaps with a capillary pulse, can scarcely mean anything else. Most liable to confuse would be the hypertrophied heart and tortuous vessels of arteriosclerosis and contracted kidney. The feel of the pulse will generally enable the differential diagnosis to be made.

The bulging præcordia of children with hypertrophy should be noticed. And alterations of the chest wall may call attention to retracted lungs or to emphysema, that may explain an accidental murmur, or dilatation with relatively insufficient valves. The existence of anemia, cyanosis, edema, will not escape attention.

Palpation —Palpation seeks mainly to confirm the results obtained by inspection. The location, strength and diffusion of the apex impulse, epigastric pulsation, and hepatic pulse, are thus readily recognized. The diastolic shock over the pulmonary valves may furnish conclusive evidence of pulmonary congestion in consequence of left heart valvular disease. A presystolic apical thrill is generally indicative of mitral stenosis. Systolic thrills, while usu-

ally due to organic disease, are also found associated with functional murmurs

The value of careful palpation of the pulse need not be dwelt upon at any length. While it is asserting too much to say that each valvular lesion has its own peculiar pulse, one may safely assert that not infrequently the character of the pulse lends strong confirmatory evidence of a particular valvular lesion. The Corrigan pulse of aortic insufficiency is a good illustration. A slow pulse that is small and weak in spite of the fact that there is greatly hypertrophied and laboring left ventricle, speaks for aortic stenosis. A small, irregular, usually rapid pulse is commonly found in mitral stenosis. The pulse of mitral regurgitation is not so often of diagnostic value, as it frequently differs very little from the normal.

Percussion—Without proof of cardiac enlargement, suspicion is thrown at once upon the organic valvular origin of an endocardial murmur. It is necessary, too, to determine what parts of the heart are enlarged, whether right or left, the auricle or the ventricle. Thus a diastolic left-heart murmur without left ventricular hypertrophy, but with right-heart enlargement, speaks against aortic regurgitation and for mitral stenosis. Again, percussion, with the other methods of physical diagnosis, enables one to exclude extra-cardiac causes for murmurs such as might arise in a heart dislocated by retracting extra-cardiac tissue or by pressure (*e.g.*, aneurism, tumor, fluid, air, or retracted lung). A slur is sometimes cast upon cardiac percussion because two examiners do not agree absolutely in their markings of the cardiac outlines obtained by percussion. This is because the deep cardiac dullness is relative, and each ear has an individual standard of relative dullness. But great practical uniformity in results will be found on comparing the findings of two skilled examiners—that is to say, both will agree that there is left ventricular hypertrophy, right-heart dilatation, etc.

Auscultation—On auscultation more is to be listened for than the endocardial murmur. The value of an accentuated pulmonic second tone as an evidence of pulmonary engorgement, such as comes with left-heart valvular disease, has been referred to, but will bear repetition. An accentuated aortic sound may call attention to the kidney as the cause of the increased systemic tension. A weak aortic sound may be an indication of insufficient supply of blood to the aorta because of mitral or aortic obstruction. Reduplication of basic second tones may point to valvular disease, as in mitral stenosis. A sharply accentuated, snappy first sound at the apex is common in mitral stenosis. The tones in the cervical and peripheral

vessels are not without value in diagnosis—*e g*, the well known peripheral tones in aortic regurgitation

Illustrations of the truth of the foregoing statements could be multiplied from the writings of others, or from one's own practice I have several times exhibited to classes cases of aortic regurgitation, and have been able to bring so clearly to the attention of the students the cardiac hypertrophy, the accentuated pulmonic sound, the throbbing tortuous arteries with water hammer pulse, the Quincke pulse, the peripheral tones that the students have made the probable diagnosis without one word said about murmur In the same manner I have had them make the diagnosis of mitral stenosis by accentuated and palpable pulmonic second, the right-heart enlargement, the abrupt first sound, and the rapid, small, irregular pulse That the murmur in mitral obstruction is very frequently absent, is the testimony of nearly all writers This is so not alone during terminal asthenia, but when for any cause the left auricle becomes weak In two Cook County Hospital cases that I recall there was a common agreement among several physicians who examined them that mitral stenosis existed, though at times the presystolic or diastolic murmur with the thrill could not be found I have a patient in private practice in whom I have never found a distinct presystolic murmur, but there is little doubt that there is mitral constriction, because of the other signs just enumerated

Tachycardia, pulmonary or bronchial sounds, or some other predominant murmur, may drown any feeble murmur Under these circumstances one has to rely solely upon the accompanying evidences of valvular disease A young woman six months pregnant, who knew she had heart disease, came to the County Hospital giving a history of rather suddenly developing dyspnea with slight hemoptysis She was moderately cyanotic, orthopneic, with numerous râles of edema, and a small dull area with diminished vesicular sounds over the lower right lung posteriorly, presumably an infarct. The heart was arrhythmic, beating tumultuously at about 140 to 150 I was unable to analyze the murmurs heard, but a probable diagnosis of double mitral lesion was made, not so much from the enlarged right heart and accentuated and palpable pulmonic second as from the abrupt, snappy and loud first tone at the apex When under morphine, rest and digitalis the heart had quieted down, there were made out typical systolic and diastolic apical murmurs These cases merely serve as illustrations of the fact that we often can, and sometimes must, make a diagnosis of valvular lesion without regard to murmur

By failing to give proper regard to the secondary signs of valvular disease, one can easily err in calling a functional murmur an organic one. The danger is greatest, I believe, in the murmurs arising during acute infectious diseases, such as rheumatism, typhoid, pneumonia, chorea. I recall two such errors, corrected by autopsy—one in typhoid and one in tuberculosis. It is not always possible to differentiate between the inorganic murmur and that of an acute endocarditis, yet time and a due regard to the secondary signs of valvular disease will usually clear up the diagnosis.

Nearly forty years ago Walshe clearly recognized the fact of the temporary disappearance of organic murmurs when he said "Every necessary organic condition of a heart murmur may be present, and yet the resulting murmur be soft, if the current be feeble—nay, the murmur may be wholly deficient." And again "Excite a tranquil heart, and a murmur previously almost inaudible becomes distinct, weaken the energy of the cardiac contraction by digitalis ['] or aconite, and the converse result follows."¹

All of the older writers on diseases of the heart recognized—some more clearly than others—the value of secondary signs in determining whether or not a murmur was the so-called anemic, hemic, or functional murmur. So these points are not new. But they are too often forgotten in practice. That the profession is becoming alive to their importance is shown by the frequent reference to these topics in current literature, and incidentally by the fact that at this meeting there are presented three papers upon practically this same subject.

In this paper the intention has not been to undervalue the importance of the endocardial murmur, but to insist that it is only by the complexus of signs and symptoms that an accurate diagnosis is made in these cases. With combined and complicated murmurs, and with tumultuous, rapid and very weak heart, one has often to hesitate as to the nature of the lesion or to confess, with Fraentzel, inability to solve the problem as to the exact character of the heart lesion. But the more one learns about the heart, the more he realizes the truth there is in Fraentzel's rather extravagant statement, that of all the evidences of heart disease the least valuable is the endocardial murmur.²

¹ Walshe. *On Diseases of the Heart*, pp. 80 and 83. Philadelphia, 1862.

² Fraentzel. *Die Krankheiten des Herzens*, II, p. 84. Berlin, 1891.

THE SYMPTOMATOLOGY OF SYPHILITIC INSANITY

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By the term *sypilitic insanity*, is not meant any form of this disorder peculiar to and characteristic of syphilis alone, but only those forms in the production of which the syphilitic virus plays the determining part. Thus we have melancholia, confusional insanity, dementia, or mania, caused by syphilis, presenting certain peculiar features, just as in alcoholic or puerperal insanities there are certain pathognomonic features stamped upon them by their etiology.

The subject of syphilitic insanity, though one of the most complex and interesting in the domain of mental pathology, is yet in the early stages of development. The chapters devoted to these forms of insanity in our American and English text books of mental medicine are surprisingly meagre and unsatisfactory. The same state of affairs is apparent, though to a less extent, in German and French works on psychiatry. The literature of the subject is comparatively scarce and is made up of a few articles in various journals, principally German. Reliable monographs are few and far between. This is probably due to the fact that investigations in the domain of nerve syphilis in general have taken scientific shape only within the last three decades, and the scientific study of syphilitic insanity is one of the late branches of psychiatry. In fact, there is no department of psycho-pathology which presents a richer field for future investigation than this very subject.

Although older physicians, like Simon, Vidal, and others, recognized the importance of lues in the production of insanity, yet their opinions were merely vague conjectures. Benjamin Bell was the first to describe a case of syphilitic insanity with anything like accuracy. His patient was a woman 26 years of age, in whom a severe cephalalgia was followed by epilepsy, which in turn was followed by mania. She recovered later through mercurial treatment.

Yvaren describes a case of mental disturbance with parietic phenomena in a syphilitic, which was cured by mercury.

Lagneau was the first to emphasize the presence of syphilophobia in syphilitics. He asserts moreover, that mental disturbance is not rare in syphilis and may assume the form of melancholia, mania, dementia, or idiocy.

Simon and Reeve mention cases of syphilitic insanity cured by mercury.

Follin emphasized the occurrence of luetic insanity with motor and sensory disturbance occasioned by organic syphilitic alteration of the cranium, meninges, or brain substance. He denied that the luetic virus could produce a psychosis independent of these lesions.

Hildebrand thought the luetic psychoses could be brought about in three different ways through direct alteration of the blood, through neoplasms in the cranial bones or meninges, and through direct involvement of brain tissue.

Older alienists differed greatly in regard to syphilitic insanity. Esquirol and Jacobi made syphilis responsible for nearly one-half of all insanity. Guislain and Leubuscher, at the other extreme, denied the importance of syphilis in the production of insanity.

Griesinger, in the second edition of his *Mental Pathology*, devotes only a few lines to this subject, he says "Constitutional syphilis does not readily lead to insanity, otherwise than through palpable diseases of nutrition of the skull, or of the brain and its membranes. These diseases are periostitis with slight inflammation of the dura mater and thin membranes, severe chronic meningitis, and encephalitis. Actual exostoses of the basis crani have been found in general paralysis. Headaches of long standing, with nightly exacerbations, affection of the nasal bones, superficial topi on the skull, and the well known symptoms of constitutional syphilis in other parts of the body, render the diagnosis comparatively simple." He relates a case of luetic meningitis with marked dementia.

Virchow, in his *Krankhafte Geschwülste*, points out the importance of all kinds of luetic neoplasms in the production of insanity, with the learning and profundity characteristic of this great master. He mentions a case of gummatous leptomeningitis in which delirium occurred, and says that this lesion can cause insanity—be it stupor or dementia, or be it mania with paralytic phenomena.

Zambaco, in his great monograph on Nervous Syphilis, mentions cases of syphilitic mania and progressive paralysis, he also speaks of the syphilophobia of syphilitics.

Albers says hypochondriasis is the fundamental mental disturbance in syphilitic insanity. Leidesdorf says the same, but ascribes it not to the luetic brain-disease but to psychical shock through fear of the disease, although in some cases it can be caused by the brain disease itself. Leubuscher ascribed this hypochondriasis to the luetic cachexia. Engelstadt considers it to be only a constitutional phenomenon. Gros and Lancereaux regard it as a symptom of syphilitic neurosis, caused by the constitutional chlorosis.

Really the first scientific and thorough treatment of the subject

of syphilitic insanity we owe to Wille. He first considers the nervous symptoms which occur usually in tertiary lues, but which may appear in the secondary or earlier, even soon after the primary lesion—these are cephalalgia, a feeling of pressure in the head, rheumatoid pains in the extremities, general hyperesthesia, insomnia, etc. In some cases mental disturbance has showed itself soon after contagion, and Wille observed cases where the psychosis appeared before the roseola. This occurred, however, only in those who manifested a neurotic taint. In some of these cases the psychosis manifested itself as an acute delirium or acute mania without any prodromata. In others, a period of depression or hypochondriasis preceded the outbreak. In the majority of cases the psychoses were chronic and lasted a long time, they were manifested principally in the form of hypochondriasis, melancholia, mania, primary and secondary dementia, and progressive paralysis. The primary luetic psychoses—mania or melancholia—either recover or terminate in dementia. Wille points out an important symptom of all these psychoses, viz. weakening of memory and intellect. Pure mania and melancholia, without symptoms of dementia, are exceptional.

Dementia is one of the most frequent forms of luetic insanity. It is either primary or it follows some other form of syphilitic insanity. One of the greatest works ever published on this subject is that of Erlenmeyer. This author states that all the known forms of mental disturbance can be caused by syphilis, but they are always stamped with characters of intellectual weakness. He also points out the partial mental defect in these psychoses, where the ability to speak a foreign language, to reckon, to play musical instruments, before possessed, is lost. Erlenmeyer divides luetic psychoses into three great groups which can form manifold combinations or pass into each other, and which indeed represent but three different stages. These are the simple psychoses, the psychoses complicated by motor and sensory disturbances, and the psychoses that take on the form of parietic dementia. According to Erlenmeyer, the luetic psychoses can occur in all forms from the mildest hypochondriasis through different forms of melancholia up to the most violent furor or silliest grandiose insanity.

Pirrocchi divides syphilitic insanity into four groups: the first includes psychoses with great mental depression and syphilophobia, the second, psychoses of sudden development, such as mania and febrile delirium without delusions of grandeur, the third are characterized by weakness of memory, stupor, and dementia, the fourth by motor disturbances, in which autopsy reveals arachnitis and cortical atrophy.

Fournier makes two groups one characterized by prolonged development of a depressive state, leading to gradual disintegration of the intellect—that is to say, to a progressive dementia, the other including cases which exhibit a certain kind of excitement, the outcome of brain irritation, and manifested by more or less acute attacks of delirium or furor

In his article on "Brain Syphilis" in Ziemssen's Cyclopaedia, Heubner speaks of psychical symptoms being associated with syphilitic epilepsy, and of syphilitic dementia simulating parietic dementia but lacking the grandiose character In a later article he states that brain syphilis is usually a phenomenon of secondary or tertiary lues, yet that there are cases where it can appear in the primary period when systemic infection is indicated only by enlargement of lymphatic glands This premature appearance of nerve symptoms is usually manifested in patients "burdened" (*belastet*) by heredity Such patients develop a mean disposition and a depressed, impulsive nature They have then a dislike for occupations which before were pleasant to them, and wish to be by themselves They sleep more than usual The intelligence becomes affected and the memory feeble In other cases there is an unusual activity a slight exaltation, and increased volubility and mental acuteness The mental life of the patient undergoes many changes There may be confusion of thought, like that of drunkenness, from which the patient may awake in a few minutes, like a very sleepy man Dementia is the end of this state The dominating trait of brain syphilis is gradual disintegration of the intellect

Clouston believes that syphilitic psychoses appear in individuals predisposed thereto He divides them into four groups first, acute delirium, during the secondary period, second, mania cum delirio, occasioned during a rapid development of a syphiloma in the frontal region, and soon ending in death, third, arteritis of the cerebral blood-vessels, with a chronic course, exhibiting pronounced immorality, sudden impulses, ugly temper, and a gradually increasing dementia, often with convulsions and paralyses, although without cephalalgia, fourth, various insanities caused by changes in the cranial bones and membranes

Kowalewsky emphasizes the importance of syphilophobia and hypochondriasis in luetic psychoses, and has made some new and important contributions to our knowledge of syphilitic melancholia He points out the frequency of the amentia of Meynert, or confusional insanity, in syphilis He holds that there is a syphilitic paranoia, but that mania of syphilitic origin is rare

I believe I have given a fair *résumé* of the principal contributions that have been made to this most interesting subject. That they are varied and conflicting, is clearly apparent. This is partly due to the variable and complex characters of luetic psychoses. No hard and fast boundary lines can be drawn between the various forms assumed by diffuse luetic cortical disturbance, for these forms may occur separately or mixed, and may run into each other by scarcely perceptible gradation. Luetic insanity has no mental peculiarities of its own, all its vagaries may occur among insanities of different origin, as has been pointed out by Kahlbaum and Westphal. Tamburini remarks that "what we usually diagnose as melancholia, mania, stupor, and dementia, are only transitory states, and what we view as the essence of the disease is only a simple phase of it." The lesions which lie at the base of these psychoses are highly variable in character, extent, and topography, and so specific lesions, for this reason, stand almost unique in cerebral pathology. All these considerations explain to us the differences of authorities on this subject, for chance has largely determined which class of cases of these protean psychoses they have most often met with. In this dark continent of psychiatry, just as their paths have diverged through the primeval forest of psychical symptoms so too will their narratives differ. Nevertheless, all through the various statements of the authors I have mentioned, there is a certain consensus of opinion in regard to certain predominant characteristics of the luetic psychoses.

They agree in the main in regard to the preponderance of the psychoses of depression and weakness due to syphilis. They agree in regard to the presence of syphilophobia and hypochondriasis. They mostly agree in regard to the prevalence of melancholia and dementia and are in accord in regard to the rarity of genuine mania. The writer has had opportunities of thoroughly studying many cases of syphilitic insanity. He has found a prevalence of certain forms: in many cases a morbid dread of syphilis, or syphilophobia, was the chief symptom; in others this fear had become a conviction, and the victims were suffering from what might be called syphilo-pathophobia, or hypochondriasis. Next in order of frequency were the melancholiacs, in whom focal symptoms—no rare thing in all forms of syphilitic insanity—were common, still less frequently were seen cases of dementia, either progressive, secondary to some other luetic psychosis, or stuporous—the latter most often met with soon after infection, and last on the list were the cases of primary confusional insanity, or hallucinatory confusion.

(there are only about thirty synonyms for it), a species of mental unsoundness which is very frequently produced by syphilis, and which is often mistaken by inaccurate diagnosticians for mania—for, although Mendel calls it hallucinatory mania, it is widely different in pathogenesis, symptoms, and general characteristics

These are the principal forms of pure syphilitic insanity with which I have met. There are no sharp lines of demarcation to be drawn between them. They may become so mixed as to present a symptom-complex which alone is characteristic of syphilis, or one form may succeed and overlap another in the same individual. For example, I now have a patient who first had a syphilo-pathophobia, followed by melancholia, which in turn gave way to the symptoms of hallucinatory confusion, which he now has. Another one of my patients had first epilepsy, with attacks of fury, this was succeeded by profound hypochondriacal depression which ran into dementia. In another, hallucinatory confusion with focal symptoms preceded the dementia. In spite of this, there are some traits which are common to all kinds of luetic insanity, such as syphilo-pathophobia, depression, irritable weakness, amnesia, abulia, tedium vitæ, etc. Along with this protean character of symptoms, I have observed two cases of stuporous dementia, and one of confusional insanity, which occurred at the outbreak of constitutional symptoms. The many cases of syphilo-pathophobia and melancholia which I have seen occurred in the later secondary and tertiary stages.

I recall one case, that of an athlete 35 years of age, who became infected at the age of 26. He was a pathophobic melancholiac. His imperative movements were very ridiculous at times, and he would laugh at them himself. He also had many imperative conceptions. Every day he imagined he had a new disease, and at night his physician would have to reassure him that such and such an organ was in its proper place or in a healthy condition before he would go to bed satisfied.

Some months ago I attended a lady who had suffered from profound syphilo-pathophobic melancholia, mixed with many focal symptoms, which afterward passed into hallucinatory confusion with pronounced delusions of persecution. She passed from my care, and later on committed suicide by jumping from the upper story of a hospital.

I have now under treatment a gentleman of 58, who contracted syphilis about fifteen years ago. His anamnesis revealed the fact that several years ago he began to show many symptoms of nerve syphilis, such as nocturnal headache, insomnia, vertigo, oculo-motor

palsy, transient hemiplegia, aphasia, etc. About a year and a half ago his condition became much worse—he became profoundly depressed, apathetic, and amnesic, he feared all kinds of diseases, especially syphilitic disease, he thought he heard his fellow workmen calling him names and ridiculing him, that he could see them pointing at him, and hear them say that he was rotten from disease and should go and hang himself. He afterwards secured a place as a guard at an exposition, and the same things happened there—he imagined he heard the visitors making vulgar remarks about him, and that other employes were conspiring to make him lose his place, he thought that passers by on the street meant their gestures and remarks for him, he heard people say, "There he goes! Catch him! Drown him!" One morning he started from home, and as he walked he became more and more agitated from what he thought he saw and heard. He imagined that everybody was against him, "that he was too rotten to live." He afterward told the writer that all the doctors, as they passed by in their carriages, pointed and jeered at him and told him to drown himself. In confusion and desperation he threw himself into the Mississippi River, from which he was rescued from drowning and taken to the City Hospital. Being called to see him, after a careful examination I pronounced it a case of syphilitic insanity and advised energetic anti-syphilitic treatment. Under this treatment he improved so rapidly that he was discharged at the end of two weeks. He has since remained under my care and has been making steady improvement. This was undoubtedly a case of hypochondriacal melancholia, followed by hallucinatory confusion with pronounced delirium of persecution.

This form of insanity I find to be of frequent occurrence in lues. Its systematic position in mental nosology is yet a disputed point. *Amentia* (Meynert), *hallucinatorische wahnsinn* (Krafft-Ebing), *mania hallucinatoria* (Mendel), *delusional stupor* (Newington) and *acuter wahnsinn* (Schuele) are among some of its best known synonyms. It results from irritation of an exhausted or hereditarily affected brain. The mental phenomena are usually the result of irritation of the psycho-sensory centres, but may at times show signs of implication of the psycho-motor—hallucinatory mania. There is, as a rule, a greater or less degree of confusion and clouding of consciousness, which, reaching a certain degree of intensity and mixed with unsystematized delusions of persecution, may give the symptom picture of delusional stupor. Sometimes, however, there is a rich sensory delirium, shifting and variable. There may be delirium of persecution, poisoning, sinning or grandiose delirium.

The mental contents may arise from hallucinations and illusions or may be a true primordial delirium. Owing to the general character of confusion which prevails in this form of insanity, there is a complete absence of any systematization of delusions. Yet this is the form which has apparently been mistaken by Poliakov, Tichomiroff, Kowalewsky, Kiernan, and others, for syphilitic paranoia. Weakness, depression and confusion are the common characteristics of the luetic psychoses. Now true paranoia has none of these characteristics; it is a chronic degenerative insanity, with systematized delusions, a "hypertrophy of an abnormal character." The most that lues could do would be in giving impetus to the outbreak of a paranoia tardiva. In other words, paranoia cannot be acquired, and the very nature of a luetic psychosis prevents it from assuming the form of a paranoia.

Luetic dementia is one of the most characteristic manifestations of cerebral syphilis. It may follow some other form, such as melancholia or confusional insanity, or it may be primary. I have not been able to observe the delusions of grandeur spoken of by Erlenmeyer, Schuele, and others. In fact, I believe that absence of delusions of grandeur is one of the prominent marks of luetic dementia. I have more often observed delusions of insignificance. Hallucinatory delirium, somnolent or somnambulistic conditions may complicate syphilitic dementia, or a condition resembling acute delirium may occur as an episode in it. Motor, sensory, and psychical symptoms form the random mixture of the clinical picture. The dementia only affects certain psychical functions, such as violin- or piano-playing, speaking a foreign language, etc. These faculties may be affected at one time and restored at another. The patient may at one time be witty and at another stupid, at one time sensitive and at another brutal, sometimes moral and sometimes immoral. If the dementia does not occur primarily, it is usually preceded by hypochondriacal melancholia. The motor symptoms mingled with dementia are mostly those of ataxia or paresis, ataxic and glossoplegic disturbances are present now in a case under my care. The gait is sometimes clumsy and unsure. The mental and motor disturbances may go hand in hand in some cases. Neuralgias and osteocopic pains, especially cephalalgia, increase at night. Visual disturbances may occur at any time. Ptosis, strabismus, myosis or mydriasis is of frequent occurrence. The patient may have attacks of hallucinatory mania, from which he may emerge the worse for wear. Acute delirium may complicate matters and lead to death. Apoplectiform and epileptiform convulsions may do great damage to the

brain mechanism The sudden coming and going of symptoms, along with stupor or dreamy states, is characteristic Later we may have to deal with decubitus and cystitis, which only hasten the *exitus letalis*

The relation of hereditary syphilis to idiocy has in later years excited considerable interest Beach, Shuttleworth, Ireland, Derville and others have discussed this question There is but little doubt that hereditary syphilis may cause eclampsia, hydrocephalus, meningitis, policephalitis, hemorrhage, embolism, thrombosis, epilepsy, etc., which in turn can retard or affect intellectual development, and so produce idiocy or imbecility

Although the writer has been treating of forms of insanity in which syphilis is the chief and determining cause, yet it may not be inopportune to devote some space to paretic dementia Notwithstanding the fact that so many alienists (especially in Europe) assert that this disease is chiefly or wholly due to syphilis, the writer's experience has almost led him to believe in the truth of Magnan's dictum "*Je suis encore à trouver un seul cas, où la paralysie générale soit imputable à des lésions spécifiques*" Again, there is a great difference between the causes and types of insanity in Europe and America Paretic dementia in this country is undoubtedly the direct result of the artificial mental, moral and physical conditions of life, especially in our large cities Lack of sleep, care, anxiety, disappointments, greed of gain, excesses in eating, drinking, promiscuous intercourse gambling, social rivalry, domestic worry, and married misery—in short, any or all of the thousand and one vicious influences of our modern artificial environment—can produce this disease in one so predisposed Insanity in America is one thing insanity in Europe another The fact that this disease is most prevalent among brokers, business men, professional men, politicians, society men, saloonkeepers, gamblers, actors, etc., shows what an important rôle the scramble for wealth, pelf and power plays in the production of this form of insanity

One of the greatest obstacles in the way of the upholders of the syphilitic origin of paretic dementia is the scarcity of paretic dementia among females about seven times as many males being afflicted as females Yet as many females as males have syphilis, and brain syphilis and syphilitic insanity are almost as prevalent among females as among males The question then is If syphilis is the chief cause of paretic dementia, why is the latter so rare among women, among whom syphilis is so prevalent? At the present day the discussion concerning the syphilitic origin of paretic dementia

rages with great fury Those holding to the syphilitic origin are numerous and eminent in learning Those holding to the opposite view are just as numerous and just as eminent in ability Kowalewsky and Hougberg have recently given *résumés* on this subject

There is a form of progressive syphilitic dementia which often takes on a "paretoid" character It can, however, be distinguished from typical paretic dementia by many characters, such as absence of delusions of grandeur, absence of maniacal episodes, and an amenability to a certain extent to anti-syphilitic treatment This is the *pseudo-paralyse générale* of Fournier, Christian, Voisin, and Sauret

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PREVENTION OF OPHTHALMIA NEONATORUM ¹

BY CHARLES ZIMMERMANN M.D., MILWAUKEE, WIS

In a meeting of a society which has the discussion of hygienic questions as the essential feature of its programme the recommendation of measures to prevent ophthalmia neonatorum ought to be given a prominent place

Statistics have shown that ophthalmia neonatorum occurs in 15 per cent of eye patients and contributes 11 per cent to the blind eyes observed in eye clinics Two-thirds of the inmates of the institutions for the blind of Germany and France in 1886 had lost their sight from it, and, according to Haab, 3845 infants of 42,871 born in lying in hospitals (1 c, 89 per cent) had ophthalmia neonatorum ²

In 1894 a committee of the Silesian Society of Patriotic Culture sent circulars to all physicians in Breslau, inquiring how many cases of ophthalmia neonatorum they had observed The returns showed that, of 12,000 children born in Breslau in 1894, at least 250 (1 c, about 2 per cent) had the disease ³

Although almost every physician who ever attended an eye clinic in his college years has become familiar with the evil results of ophthalmia neonatorum when left to itself or neglected, and has been taught that it can be prevented by proper means, the public at large—and especially nurses and midwives, who in many instances see these cases first and alone—seem to lack sufficient knowledge, or even oppose medical aid in such emergencies. Indeed, a few weeks ago I had such a personal experience. A young woman, confined by a midwife, became very sick, so that on the twelfth day of the puerperium a physician was sent for. Accidentally noticing that the child had an eye affection he advised the people to call at once an oculist. When I arrived I found a severe case of ophthalmia neonatorum, in which I could prove microscopically the presence of gonococci in the pus cells. I was told that the midwife, as is usually done had ordered warm chamomile applications and had dissuaded the relatives from their intention to consult an oculist. Fortunately the case got well without the least affection of the corneæ. But the danger of blindness in which this infant was placed by the criminal ignorance or stubbornness of the midwife left a deep impression on

¹ Read before the Wisconsin State Medical Society at Madison Wis. June 4, 1896.

² H. Cohn *Hygiene des Auges*. 1892.

³ H. Cohn *Centralblatt für Prakt. Augenheilk* 1895, p 140.

my mind Ophthalmia neonatorum can be prevented, and it ought not to occur among civilized nations

We know that the agent of the disease is the gonococcus, derived from the parturient secretions of the mother affected with gonorrhea, and communicated to the eyes of the child primarily during labor, from the maternal secretions covering the lids and the face, or secondarily, later on, by the water in which the infant is bathed, the hands of the mother or nurse, or by towels, etc., soiled with infectious matter Zweifel and Kroner proved experimentally that the sanguinolent, serous or purulent puerperal discharge, free from gonococci, when brought into the conjunctival sac, does not cause blennorrhœa

These facts call for the following measures

- 1 Men affected with gonorrhea or gleet ought not to be allowed to marry

- 2 The vagina of a woman who is suspected of gonorrhea ought to be cleansed with antiseptic solutions before and during labor

- 3 As soon as a child is delivered, the lids and surrounding parts ought to be dried with aseptic cotton or gauze and then washed with boiled water or sublimate solution 1 5000—never with sponges or with the water in which the child has been bathed

After the bath the eyes are treated according to Credé's method (devised in 1882), viz the lids are held apart with two clean fingers, and a drop of a 2-per-cent solution of nitrate of silver is dropped on the cornea from a glass rod Then the eyes are left alone Especially in the next twenty-four to thirty-six hours, if a slight redness or swelling of the lids with mucous discharge should occur, the instillation is not to be repeated In the instructions I give to the nurses in the training-school I value this simple procedure as most important, and particularly require that each nurse execute it before me Credé advised this treatment for all infants directly after birth Of 1160 infants treated by him in this fashion within three years, only one (0.1 per cent) developed blennorrhœa, and in this case the instillation had been forgotten in the rush of practice¹ Previous to inaugurating this treatment he had 7.8 per cent of ophthalmia neonatorum among 5057 infants in thirteen years Others following his rule have reported similar excellent results Haab, for example, in his statistics from various lying-in hospitals, found that before the introduction of Credé's method 8.9 per cent of 42,871 infants had blennorrhœa, while after its introduction only 1 per cent of 10,521 infants were so affected

¹ H Cohn *Centralblatt für Augenheilk*, 1895, p 109

The preventive efficiency of nitrate of silver depends upon its action in the depth of the tissues. It coagulates the albumen of the cells, and thus destroys the gonococci which may have migrated into the corneal epithelium. A drop of a 2 per-cent solution of nitrate of silver, even in healthy eyes, does not produce any lesion except slight redness, as proven by Fraenkel, who protected the healthy eye in children affected with blennorrhoea of its fellow by daily instillations of one drop of the solution for six weeks.¹

4 The most careful cleanliness in washing and handling the child will prevent secondary infection.

5 If, however, the eyes show the least sign of pus on the subsequent days, it is the duty of the midwife or nurse to send at once for a physician who is familiar with treating the disease, and under no circumstances undertake treatment herself.

6 Any nurse or midwife who from ignorance or obstinacy fails to report such a case at once, ought to be severely fined and excluded from further practice.

If these rules are strictly adhered to, ophthalmia neonatorum will be prevented and many eyes saved from blindness.

¹*Klinische Monatschr für Augenhellk* 1889, p. 5

BOOK REVIEWS.

EPIDEMIC OPHTHALMIA ITS SYMPTOMS, DIAGNOSIS, AND MANAGEMENT By Sidney Stephenson, M B, F R C S Edinburgh and London Young J Pentland New York MacMillan & Co 1896

Dr Stephenson has had exceptional opportunities for studying epidemic diseases of the conjunctiva, and his work at Hanwell as well as other places is well known. The title of the present book is perhaps unfortunate, in that it is a return to the old nomenclature which we are all trying to avoid. Throughout the work the term *ophthalmia* is used for conjunctivitis, and other old terms substituted for modern ones.

The epidemic diseases are divided into four classes—muco-purulent or catarrhal, purulent, diphtheritic, and trachomatous. Muco-purulent is divided into the ordinary form and “apthous” or “pustular,” which Dr Stephenson regards as in no way related to true phlyctenular conjunctivitis.

The first chapter of the book is introductory and discusses the causes of different types. Purulent ophthalmia, as well as the diphtheritic form, is considered as always due to contagion. The true nature of the causes of these two is known. Acute trachoma and catarrhal conjunctivitis are undoubtedly due to some specific contagion, the nature of which is not known. Dr Stephenson says “I no more believe in its (trachoma’s) spontaneous evolution than I do in the *de novo* origin of measles or ringworm.” Also “Of the four acute affections, grouped together under the common name of epidemic ophthalmia, three arise from contagion, namely, purulent and diphtheritic conjunctivitis, and acute trachoma. With regard to the fourth, catarrhal ophthalmia, whatever be its origin, it spreads, at any rate, by transfer of discharge.”

Dr Stephenson, throughout the book, insists that the contagion is transferred by direct conveyance, never through the air. The system of preventive treatment laid down so carefully is based upon this belief. In our country, where the system of parochial schools is not extensive, we rarely see outbreaks such as Mr Stephenson speaks of, and therefore are not brought to realize the importance of the measures he so carefully recommends.

The chapter on Follicular Granulations and Folliculosis is most admirably written, and will do much to clear up the obscurity in the minds of many oculists, as well as general practitioners, in regard to the difference between follicular conjunctivitis and trachoma. Mr Stephenson takes the position that true trachoma has no connection with follicular catarrh, and that the latter condition has nothing to do with the development of the former except that it may make the soil more favorable.

The author denies Marston’s dictum “that vesicular ophthalmia has an intimate etiological relation with other miasmatic disorders, and that the state of the conjunctiva offers a delicate test of the hygienic state of a regiment.”

He examined 14,797 children in different schools, of different sanitary condition, and in different parts of England, all within a period of five months. The percentages show that neither age, sex, sanitary grade of the school, nor climatic conditions, has any influence on the amount of folliculosis.

The chapter on the Treatment of Trachoma deals with the subject in a

masterly manner. A full discussion of the history of the disease and its treatment is presented.

Mr Stephenson says "blue stone and lunar caustic are the most trustworthy escharotics. He is a firm believer in excision of the cul-de-sac in suitable cases and his reasons for such procedure are certainly convincing. The opponents of this treatment claim that the cicatrices resulting are very disfiguring, that the motility of the globe is limited, and that complications involving the cornea may result. In seventy cases the author had only one untoward result, and that was easily remedied. He considers it proven that the operation properly performed never leads to bad results. Expression of succulent granulations is advised, and Knapp's forceps recommended for the purpose.

It is refreshing to see it stated by so competent an authority that "few cases recover in less than eighteen months in view of the statement in so many books that cases get well in a few weeks.

A new theory as to the origin of pannus is formulated: that the infection takes place from the fornix by metastasis through the posterior conjunctival arteries. Direct infection of the corneal surface is admitted.

In the treatment of entropion the operation devised by Green is employed. Hotz's operation is not mentioned.

There is a special chapter on the Treatment of Folliculosis. Lead ointment is highly recommended.

The last chapter is devoted to a consideration of lavatory and other sanitary arrangements of the most elaborate style for use in schools. Mr Stephenson's experience in such matters makes his recommendations of the greatest value.

On the whole the careful study, scientific classification, painstaking clinical experiments and the rational conclusions drawn, make this book one of the classical publications of the year. Mr Stephenson is to be congratulated on his spirit of fairness and freedom from hobbies shown so clearly throughout the book.

The publisher's part of the work leaves nothing to be desired.

C. P. PINCKARD

OBSTETRIC ACCIDENTS, EMERGENCIES AND OPERATIONS. By L. Ch. Bouliere. A. M. M. D. LL. D.

This book is cordially dedicated to the practitioners and medical students of America. The author says: "It is intended for the use of the practitioner who, when away from home, has not the opportunity of consulting a library or of calling a friend in consultation. He is then thrown upon his own resources—and the author thinks that if these fail him the incompetent one can turn to this little book and find the needful help to extricate him from all his dilemmas. Such a theory is, however, far from practical.

In the first place the practitioner is nearly always 'away from home' when confronted with obstetrical difficulties; and, in the second place, the stress of circumstances is usually too urgent to allow of consultation of library authorities. And finally, granted the time for hasty reference, the chosen guide must be a handy manual short of all unnecessary verbiage, terse and to the point.

For such a purpose the text should not be interlarded with poetry, personal

anecdotes, or historic memoirs. Such tales are entertaining and may fittingly be told "Around the Red Lamp," but are decidedly *de trop* at a time when the reader is supposed to be at his wits' end between a crying need and his own powerlessness.

In face of that most intensely emotional and appalling sense presented by a woman suddenly stricken by an attack of *eclampsia*, the physician in charge, if he is ignorant or unskilled and unable to call in wiser counsel, has little inclination for the perusal of thirty-odd pages of semi-scientific matter upon *uremia*, *urinenia*, and *ammonemia*, interspersed with narrative in more or less questionable taste.

There is much that is valuable in the book, but it is rendered less useful by the setting, and then the preface makes us critical and perhaps over-expectant.

The writing is good from a literary point of view, and the interest is held throughout by the author's vivid and entertaining style, but since the book is not the thing it professes to be, a guide in obstetric accidents and emergencies, to what end is it published?

A MANUAL OF OBSTETRICS By W A Newman Dorland Philadelphia
W B Saunders

The student entering upon the study of obstetrics, or the practitioner desiring a handy reference volume, will find himself well equipped in the possession of this book. Beyond this hearty recommendation, there is much to be said in view of one or two notable features of the work. The attempt has often been made to combine in one volume the virtues of brevity and comprehensiveness. In regard to obstetrics no author has succeeded better than Dr Dorland. There seems to be nothing lacking, and yet it is after all no more than the name implies—a manual.

The division of the subject into two parts, Physiologic and Pathologic Obstetrics, is in pursuance of the author's views upon obstetric teaching. He says "Clinically the vast majority of labors are normal in almost every respect, and physiologic obstetrics should most appropriately first command the attention of the accoucheur. Accordingly, a normal pregnancy and labor is depicted from the time of conception to the weaning of the child." This is a most rational plan of procedure, but in carrying it out the author admits to the course of normal and physiologic pregnancy and labor many discomforts and pains which we are accustomed to believe come less directly from the curse of Eve than from the cumulative detrimental influences of civilization and heredity. It is doubtful if under the present conditions of human development and social habit we are permitted to see many cases of true "eutocia," but, while more or less pain is incident to the easiest and most natural labor, such extremes of suffering as the author describes are certainly in themselves pathological. He says (page 119) "Were it not for the interval of relaxation, the stronger woman could not survive the anguish of parturition."

The rules for the government of the lying-in period seem, too, a little over-stringent. After normal delivery, a natural and physiologic process, it surely is not nature's intent that the woman be treated as an invalid and confined in irksome quietude to her room for a full month, the first fortnight spent in bed. After a severe or instrumental delivery with prolonged anesthesia, the natural fatigue of the patient and the pain and soreness incident to local lesions are enough to warrant the author's "prolonged dorsal decubitus," but the close of

a normal labor usually ushers in a period of mental and physical rebound. The mother is impatient to be about and in the full enjoyment of her new privileges and duties. Darkened windows and hushed voices and all the paraphernalia of invalidism must not be carried too far, or the patient will become depressed and her vitality lowered, and those very ills which should be avoided will be augmented.

It is well, however to err on the side of right, and over-caution will become the student and the young practitioner who need sometimes perhaps to be reminded that while the prognosis of normal labor is good for the mother, it is otherwise for the fetus since it has been found that even in the easier, anterior positions of the vertex, at least 5 per cent. of the children will lose their lives, over 9 per cent. in the posterior positions, and 30 per cent. in breech presentations.

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Just one word more upon the literary form of the volume and the publisher's work. The latter is quite up to the standard of the house, and the illustrations are commendable for their absence. There are enough for all the purposes of a manual. Over illustrating is the bane of modern medical literature. One of the most prominent features of the book is the orthoepy. We have here an up-to-date presentation of the convictions of Dr. Dorland and Dr. Gould, the well known reformer in scientific terminology. We are already tolerably familiar with pathologic, obstetric, gynecic and their ilk, and are losing our hold upon the hyphen and the dieresis but we confess to an odd sensation upon being forced, for the sake of a rigid consistency, to view such words as *intraabdominal tuboovarian genitourinary*. Not rigid consistency either for Dr. Dorland uses *anesthesia* in one place and *apnœa* in another and does not refuse the help of the dieresis in *oophoron*. We believe with Dr. Gould that 'it is the duty of every medical man to help to furnish a dignified and simple diction for professional communication' but we are not yet prepared to admit that the other doctors will have done their share in this great work when they have docilely adopted all the evolutionary suggestions that issue from the City of Brotherly Love.

TREATISE ON SURGERY. By American Authors. Edited by Roswell Park, M.D. Vol. I. General Surgery and Surgical Pathology. Lea Brothers & Co. 1896.

One needs to glance only casually through this volume to be impressed by its distinctly modern character and while it is more a *résumé* of modern surgical thought than a didactic text book, yet it fulfills all the requirements of the latter. The book lacks the cohesiveness of a work written by a single individual, but it has been carefully edited and its concise and positive style is very pleasing.

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BOOK REVIEWS

The importance of bacteriology is well recognized, and stands forth prominently throughout the book, though the advantages of microscopy in diagnosis might well have been more strongly insisted upon.

Several new chapters, such as Pathology of the Blood, Auto-intoxication, and Surgical Sequelæ of Acute Non-surgical Diseases, emphasize the radical progress in surgery during the past few years. The student has at hand not only the methods approved by the best surgeons, but also the lines to follow in working out for himself the most promising of the later theories.

In the treatment of tuberculosis, Koch's tuberculin is disposed of with judicial fairness.

The chapter on Surgical Diagnosis is too short to be more than suggestive. Inoculation of inoperable carcinoma and sarcoma with the toxins of erysipelas is more conservatively treated than Coley's recent report of 160 cases would justify.

In the chapter on Anesthesia, Schleich's method of infiltration should have been given more space and detail.

The letter-press is excellent and the illustrations new and abundant, though the colored plates in the chapter on Syphilis seem too highly colored, and the one opposite page 189 could have been well spared. The index is full, and the work will be standard for years.

IN SICKNESS AND IN HEALTH A Manual of Domestic Medicine and Surgery, Hygiene, Dietetics, and Nursing. Edited by J. West Roosevelt, M.D. New York: D. Appleton & Company, 1896.

This is a legitimate successor of the "Domestic Medicine" and "Family Doctor" of a few years back. Like so many recent works, it is prepared by collaborators, and the publishers in a note tell us that it has been issued in response to what appeared to be a general demand. Their aim has been to make it popular and attractive, embodying in a thoroughly practical way the latest and most complete information regarding medicine, hygiene, dietetics, and nursing.

The articles and contributors are as follows: Anatomy, Geo. Waldo Crary, Physiology, Frederic S. Lee, Psychology, Josiah Royce, Physical Training, Joseph H. Sears, Hygiene, Samuel Treat Armstrong, Surgery, Alexander B. Johnson, Diseases in General, J. West Roosevelt and Wm. P. Northrup, Diseases of the Digestive Organs, Heart, and Lungs, Frank W. Jackson, Diseases of the Kidneys and Urinary Derangements, J. West Roosevelt, Diseases of Women and Midwifery, S. W. Lambert, Nervous and Mental Diseases, Frederick Peterson, Medicines and Treatment, Henry A. Griffin, Nursing, Anna Caroline Maxwell.

The first two chapters of this work will not be read to any extent by lay readers. They are excellent short treatises, and while an effort has been made to keep them within the compass of those not having or desiring special training, yet the subjects do not lend themselves to more popular treatment.

The section on Psychology is all that could be desired in a work of this kind. It is practical, and shows at once the effect of mental training and education in the development of the normal mind. To any one who thinks this subject is abstruse and without application to daily affairs, we would strongly recommend perusal of this article.

To our mind the best chapter in the work deals with Physical Training.

Throughout, the writer discusses exercise and athletics as a means of health and symmetrical development, and condemns in unmeasured terms the aiming for a record, or large and bunched muscles. He discusses the whole range of athletic sports and games. The section is replete with practical hints for muscular development and health, and every one, whatever his leisure or his occupation, may obtain here practical direction.

The chapter on Hygiene is eminently practical and will place the lay reader in possession of all that it is essential for him to know on this important subject.

The remaining chapters of the book deal with the various surgical and medical diseases.

The book is beautifully printed and handsomely illustrated.

PRACTICAL POINTS IN NURSING, FOR NURSES IN PRIVATE PRACTICE By Emily A. M. Stoney Philadelphia W B Saunders. 1896

In introducing this small and practical work to the nurse and physician we cannot do better than quote the author's preface, which fully explains the scope of the work. The bedside physician must be exceptionally clever in the sick room if he cannot derive valuable hints from it.

In preparing the subject matter of this volume, whose title-page clearly indicates its design, the author has attempted to explain in popular language and in the shortest possible form, the entire range of private nursing as distinguished from hospital nursing and to instruct the nurse how best to meet the various emergencies of medical and surgical cases when distant from medical or surgical aid, or when thrown on her own resources, studiously refraining, however, from advising the nurse to act upon her own responsibility or to assume personal treatment of the patient except under circumstances of great urgency. There is simply placed before the nurse what the different diseases are, their characters and chief points of distinction and the attention required, their possible complications and the treatment likely to be adopted in a given case by the family physician, so that suitable preparations may be made by the nurse.

'An especially valuable feature of the work will be found in the directions to the nurse how to improvise everything ordinarily needed in the illness of her patient. In the sick room the embarrassment of the nurse, through want of proper appliances due to unexpected conditions or to her environments is frequently extreme, the difficulty may frequently be overcome by the simplest means when one possesses a knowledge of how to apply them.

'There has also been attempted a logical division of the text, which includes the following sections:

1 The Nurse, her responsibilities, qualifications, equipment, etc.

2 The Sick room, its selection, preparation and management.

3 The Patient, duties of the nurse in medical, surgical, obstetric, and gynecologic cases.

4 Nursing in Accidents and Emergencies.

5 Nursing in Special Medical Cases.

6 Nursing of the New born and Sick Children.

7 Physiology and Descriptive Anatomy.

The latter section, while sketched briefly, will be ample for the purposes of the nurse. The Appendix contains much information in compact form that

will be of value, and the full Index presents a ready medium for quickly consulting any desired topic

"The numerous illustrations added will be serviceable aids in making clear the application of certain lines of treatment falling specifically to the work of the nurse

"Finally, this discussion, being based on a series of lectures delivered before the Carney Training-school for Nurses, and a useful teaching-book for those occupying positions as teachers in training-schools, may prove interesting to the 'home' nurse who wishes to comprehend something of the purposes of the different methods adopted in nursing-treatment "

SPECTACLES AND EYEGLASSES THEIR FORMS, MOUNTING, AND PROPER ADJUSTMENT By R J Phillips, M D , Ophthalmic Surgeon to the Presbyterian Hospital in Philadelphia, etc Second Edition, revised, with forty-nine illustrations Philadelphia P Blakiston, Son & Co

This little book continues to be the best work on the subject of which it treats The present edition is an improvement on the first and should be read by all ophthalmologists as well as opticians Sufficient importance is not given to the proper fitting of frames by many oculists, and in consequence a great deal of the care taken to correct errors of refraction is nullified by faulty mechanical construction And, judging by the work sent out by many opticians, their ideas as to proper frames are very indefinite, to say the least Such a book as Dr Phillips's should do much to point out the suitable frame for any given case

AMERICAN ACADEMY OF RAILWAY SURGEONS Report of the Second Annual Meeting held at Chicago, Ill , September 25, 26, and 27, 1895 Edited by R. Harvey Reed, M D American Medical Association Press, Chicago 1896

This unpretentious work of 221 pages contains the papers, discussions, and other transactions of the youngest of the railway surgeons' associations The papers are grouped under several chapter headings—which, to our mind, is an improvement on the usual method of placing them in the order in which they were read They naturally group themselves under the following headings President's Address and Miscellany, Amputations, Fractures, Brain and Spinal Injuries, Treatment of Septic Wounds, and their Prevention

We have always been somewhat skeptical of the value of the numerous classes into which medical association work is being divided, but there certainly seems to be sufficient that is distinctive and peculiar to warrant the organization of railway surgeons, for while much of their work is of a sort that could be presented to any general surgical body, there is also much relating to organization, equipment, and the peculiar circumstances attending wounds and injuries in the operation of railways We do not perceive the necessity for two national associations, as we think better scientific results are commonly achieved by concentration

The Report contains nineteen papers, the greater number fully discussed These have already appeared in the pages of the *Journal of the American Medical Association*, and so do not need extended mention at this time The work has several cuts illustrative of the text and is adorned with eight half-tone portraits of the more prominent officers

PROGRESS OF MEDICAL SCIENCE

MEDICINE

UNDER THE CHARGE OF JAMES B. HERRICK, A.B., M.D.

Adjunct Professor of Medicine Rush Medical College Attending Physician to the Cook County Hospital, Chicago

Parotitis In Pelvic Disease —

W. S. Morrow (*Montreal Medical Journal*, March, 1896) reports three cases of parotitis occurring during the course of pelvic disease. Epidemic parotitis was excluded. The first case developed during a pelvic peritonitis. The other two occurred during, or replaced, menstruation. In none did suppuration occur.

Morrow refers to an article published by Paget in the *British Medical Journal* in March, 1887, where 101 similar cases had been collected. "Parotitis," he says, "has been reported by Paget and others as accompanying or following pregnancy, delivery and abortion, menstruation (which it sometimes replaces), pelvic cellulitis and hematocele, operations on the vagina and uterus, ovariectomy and oophorectomy, the use of the catheter and sound, blows on the testicle, operations and diseases of the bowel, gastritis and gastric ulcer, disease of the pancreas, and injuries and diseases of the abdominal wall. This varied origin excludes almost absolutely any metabolic theory, and favors a nervous one. And there is not wanting considerable circumstantial evidence that the nervous system is the medium through which the effect is produced. Some cases, like the last one reported in the present paper, seem to be rather transitory hyperemias than true inflammations, and suggest a vaso-motor change as the primary one. We know too that both the pelvic and the other abdominal organs have a powerful influence on the vaso-motor centre, as seen in the flushes of menstrual irregularity and of dyspepsia. Moreover, there are other facts which seem to indicate a nervous connection through unknown paths between the parotid glands and the generative and digestive systems. Among these facts may be mentioned the salivation of pregnancy, the dry mouth from which some women suffer during menstruation (Goodell), and the changes in salivary secretion observed in so many affections of the stomach and bowel. The nervous theory is supported by those who have given most attention to the subject, and, while more facts are being obtained, it may be taken as the most probable hypothesis."

The Blood in Tuberculosis of Bones and Joints.—

Dr John Dane (*Boston Medical and Surgical Journal*, June 11, 1896) concludes his report of the blood-examination in forty-three cases of tuberculosis of the bones and joints, with the following summary of results

1 Most cases of tuberculosis of the bones and joints do not decrease the number of the red corpuscles in the blood

2 They do, however, affect the percentage of hemoglobin, giving rise in fact to a mild degree of chlorosis

3 The leucocyte count seems to bear no direct relation to the temperature

4 High counts, especially in hip disease, point to the probability that there is or shortly will be an abscess formation, but low counts do not preclude the presence of abscess, especially in cases of long standing

5 Where in connection with a low leucocyte count, an abscess is found to exist the pus from it is sterile, and the case is generally one of long standing

6 In the presence of an abscess, a low leucocyte count generally indicates the absence, and a high count the presence, of a secondary infection with pyogenic organisms

7 Cases where, at the primary operation, the pus has proved sterile show an increase in the leucocyte count where the wound becomes infected with pyogenic organisms

8 High leucocyte counts do not always affect the differential count

9 Cases with a traumatic origin are generally accompanied by a high leucocyte count and run a more severe course

Anuria —

Dr Wharton Sinkler (*University Medical Magazine*, June, 1896) reports the case of a lady, 63 years of age, who for nine days and seven hours passed no urine, and none being obtained on catheterization. The ante-mortem diagnosis, concurred in by several physicians, was renal calculus. From the time when the urine began to be evacuated voluntarily to the time of her death, about five weeks, the amount of urine was from 25 to 60 ounces a day. Death was hastened by a heat-stroke.

The autopsy revealed a partly broken-down round-celled sarcoma of the left kidney, with renal calculi in the pelvis, right kidney hypertrophic

The interesting fact in the clinical history is the absence of

"the slightest evidence of uremia," in spite of the long period of suppression (There was, however, vomiting and diarrhea) But, as the writer points out, uremia is more likely to appear where there has been for a long period a gradual accumulation in the body of the non eliminated excrementitious products, than when there is a sudden failure of the kidney to perform its work. He cites numerous instances of long standing suppression, and tabulates 125 cases

SURGERY

UNDER THE CHARGE OF WILLER VAN HOOK, A.B. M.D.

Professor of Principles and Practice of Surgery Northwestern University Medical School
Chicago

Silver as a Suture Material —

Dr Credé, of Dresden, before the last meeting of the German Surgical Congress, stated that, having visited the clinic of Dr Halstead, of Baltimore, his attention was called strongly to the qualities of silver as a suture material. The fact that his father had recommended silver nitrate as a preventive of ophthalmia neonatorum, also stimulated him to make experiments for the discovery of such silver salts as would best answer the purposes of antiseptis. He has found two salts which seem to fulfill the requirements in a remarkable manner. The first is a combination of silver with lactic acid, which dissolves in the tissue juices, forcing its way into the tissues roundabout, and as a result acting in a deleterious manner upon the bacteria that lie at a little distance. Silver lactate, called *actol* by the discoverer, has an antiseptic power equal to four or five times that of corrosive sublimate, but inasmuch as it irritates somewhat when introduced directly into the tissues and produces some pain in sensitive patients, another silver salt has been prepared—citrate of silver, known to the trade as *itol*, which dissolves only in the proportion of 1 to 3800, and consequently acts even in small quantities for a long time. It is colorless, non irritating, odorless, finely pulverized, permanent, and possesses evidently the same antiseptic power as the lactate of silver. Credé has used these salts for seven months in the surgical section of the Carola House, of Dresden. Four hundred bed ridden patients and one thousand ambulatory cases have been treated therewith, so that he is able to affirm that the silver treatment has been sufficiently tried and in all essential points is worthy of professional trial. He uses the remedies for impregnating gauze and suture materials as well as for powdering the skin about wound-edges. The *itol* is especially useful for

support the entire body of the patient, if desired, from a ring in the ceiling. An enfeebled patient, a patient with a fracture at the neck of the femur, a patient with paraplegia, whether or not due to fracture of the spinal column, can be handled with this splint in an ideal manner. The necessary pressure upon the soft parts back of the limbs can be made at points where damage cannot be effected. Ulcers can be left entirely free of pressure, incipient bed-sores can be treated with advantage, and altogether the splint ought to be used much more frequently than it has been in the past. Being made of very simple material, gas-pipe as a rule being the form of iron employed, it can be constructed by any good mechanic, particularly by a gas-fitter, and after once having been constructed is almost indestructible.

Bacteriology of Strangulated Hernia —

Brentano, in the *Deutsche Zeitschrift für Chirurgie*, bd xliii, heft 3, gives the results of the study of a number of strangulated hernias, with reference to the bacteriological contents of the hernial fluid, in the cases occurring in Koerte's wards in Berlin. He concludes

1 That the water of strangulated human hernia contains micro-organisms much more frequently than we have been justified in supposing from previous publications

2 That the bacteria of hernial water are frequently few in number and exist in a condition of diminished vitality, perhaps as the result of the bactericidal action of the water

3 That, as a result of this action of hernial water upon the micro-organisms, proper investigation presupposes a cultivation upon a fluid nutrient medium

4 That the presence of the bacteria in hernial water appears to stand in close relation with all the factors which threaten the vitality of the strangulated parts in a special way

Puncture of the Lateral Ventricle —

Dr Bernhard von Beck writes from the Heidelberg clinic of Professor Czerny on this subject (*Mittheil aus den Grenzgeb der Med und Chir*, bd 1, heft 2). From his interesting paper we abstract the following propositions

Direct puncture of the ventricles is a more thorough operation and more successful procedure than lumbar puncture, and the latter is only to be regarded as a last resort

Simple puncture, if necessary repeated after certain periods

upon the recurrence of pressure phenomena, is best practiced through an opening with osteoplastic bone-flaps. It is preferable to drainage of the ventricle, which is attended with greater danger of infection on account of the constant saturation of the dressing material with cerebro spinal fluid. Repeated puncture is a simple and mild procedure, without danger if performed with aseptic instruments, and exercises a great influence upon the subjective symptoms in brain tumor.

Operation for Hydrocephalus —

Dr A. Henle (*Mittheilung aus der Grenzgeb. der Med. und Clin.* Bd. 1, Heft 2) reports a case of hydrocephalus in which he operated by making a skin periosteum bone flap and introducing a small packet of glass wool in the form of a thick nail through an opening made with scissors into the lateral ventricle. The wound was closed by means of skin sutures over the piece of bone which had been turned back into place. He says the indication for operation in cases of hydrocephalus is only given by constant and rather long existence of the disease when dangerous or threatening symptoms of brain pressure are to be combated.

PATHOLOGY

UNDER THE CHARGE OF ARTHUR E. EDWARDS, A.M., M.D.

Professor of Therapeutics, Northwestern University Medical School. Attending Physician, Cook County Hospital, Pathologist to Cook County, St. Luke's and Wesley Hospitals.

Pulmonary Hypertrophic Osteo-arthritis —

Goodlee (*British Medical Journal* July 11 and 18, 1896) reports several cases of this affection to which he called attention long before (1885) Marie's description and classification (1890). He says "It is a poor satisfaction to be able to claim that one was the first to describe a particular disease if it is necessary to add that the case was imperfectly observed and that its real nature was not recognized. I am afraid, however, that this is true, and it is at all events clear that most of the cases which had been reported as examples of the disease have had actual mischief in the joints, and some have suffered from enlargements of the bones."

The first case is of interest, as it ended in complete recovery. "A young man had retained for some years in his pleura a long piece of india rubber tubing which had been imperfectly secured at the time of the original opening. The swelling over the wrists and

support the entire body of the patient, if desired, from a ring in the ceiling. An enfeebled patient, a patient with a fracture at the neck of the femur, a patient with paraplegia, whether or not due to fracture of the spinal column, can be handled with this splint in an ideal manner. The necessary pressure upon the soft parts back of the limbs can be made at points where damage cannot be effected. Ulcers can be left entirely free of pressure, incipient bed-sores can be treated with advantage, and altogether the splint ought to be used much more frequently than it has been in the past. Being made of very simple material, gas-pipe as a rule being the form of iron employed, it can be constructed by any good mechanic, particularly by a gas-fitter, and after once having been constructed is almost indestructible.

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Simple puncture, if necessary repeated after certain

pation revealed a stone in the diseased kidney and no evidence of tuberculosis

Von Leyden (*Fortschr der Med*, May 1, 1896) calls attention to the frequency with which the bacillus *tuberculosis* has been confused with the smegma bacillus, especially as the two have certain morphological resemblances and their staining reactions are not dissimilar. They are differentiated as follows: 1. Smegma bacilli, stained by anilin dyes, lose their stain on two-minute treatment with acidulated alcohol, while tubercle bacilli do not thus destain. 2. Smegma bacilli lose their stain under Gram's stain, while tubercle bacilli retain anilin fuchsin staining. 3. A cover glass preparation of tubercle bacilli, carried through the flame ten times and stained with Ziehl's solution, presents the bacillus in a somewhat granular form or as composed of a succession of spherules, the smegma bacillus remains a solid rod under the same treatment.

Leyden records several mistakes made before the identification of the smegma bacillus. König publishes a case of enlarged kidney, with tubercle bacilli (so-called) in the urine and unmistakable pulmonary phthisis. The tubercle bacilli were, however, smegma bacilli, and the renal tumor was sarcoma. Senator has seen many cases of alleged tubercular cystitis recover, which he could explain only on the assumption that smegma bacilli contaminated the urine of a vulgar cystitis. This author has written on the differentiation between the two varieties of bacilli in his contribution to Nothnagel's *System of Special Pathology and Therapy*, now issuing from the German press.

Fraenkel avoided many mistakes by carefully cleansing the genitalia and then catheterizing. He has used Ehrlich's stain (gentian violet) for tubercle bacilli, which method, on destaining with nitric acid, leaves smegma micro-organisms without stain. The "caterpillar" like arrangement of the tubercle bacilli is not observed in the other genus.

Classification of Lymphatic Growths —

Dr W. G. Spencer (Section on Pathology, British Medical Association, 1896) ventures a classification, on clinical grounds, of lymphatic tumors. Rejecting the term "lymphoma," his classification embraces three groups: simple lymphadenoma, malignant lymphadenoma, and lymphadenomatosis.

Simple lymphadenomata include strictly local lymphatic overgrowths, initiated by external causes and ceasing when such causes cease to operate—e.g., trachoma of the eyelids, naso-pharyngeal

knees and ankles was very marked, as was the clubbing of fingers and toes, and I do not doubt that many would have thought there was enlargement of the bones and affection of the joints. I cannot indeed prove that such was not the case, but the swelling quite disappeared after the removal of the tube and the closure of the empyema."

Case 2 was probably one of arthritis complicating chronic empyema, although there seemed to be enlargement of the lower end of either femur and the upper end of either tibia.

In Case 3 there was some swelling of the wrists and ankles during the existence of a chronic empyema that finally closed. Although there was some clubbing of the fingers, this case could scarcely be considered as belonging to the disease in question, but is of some interest as constituting a possible transition form.

Case 4 was somewhat similar, and the author calls it polyarticular rheumatoid arthritis. The joint trouble followed a pulmonary abscess and prolonged suppuration of tubercular glands.

Case 5 the author considers to be a "genuine case." A man of 29 was said to have had a cough since infancy, for three years the expectoration had been offensive, and six months before examination the ankles and knees had begun to be swollen and painful. From the examination a diagnosis of pulmonary tuberculosis of the fibroid type was made, but as no tubercle bacilli could be found it was provisionally changed to bronchiectasis. Some of the interphalangeal joints, the wrists, the knees and the ankles were enlarged, and the toes were markedly clubbed, but the author thinks an enlargement of the bones exceedingly doubtful.

Case 6, a man of 25, is also thought to be typical. Over two years before examination he had an attack of what seems to have been acute pleurisy followed by cough which persisted, with the expectoration of muco-pus. The fingers had been clubbed and the knee-joints swollen for two years, and examination showed a similar condition of the toes and ankles, but the author is inclined to think the bones are not enlarged, and a skiagraph of the hand shows the phalanges to be normal.

Smegma Bacilli and Tubercle Bacilli —

Mendelsohn (*Deutsche Med Woch*, 1896, No 17) reports a case in which the patient's urine contained much pus and granular detritus. The urine from the right ureter was clear, while cystoscopy demonstrated that the pus and detritus escaped from the left ureter. Tubercle bacilli were found in the urine. Nevertheless, the extr-

pation revealed a stone in the diseased kidney and no evidence of tuberculosis

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Simple lymphadenomata include strictly local lymphatic overgrowths initiated by external causes and ceasing when such causes cease to operate—e.g., trachoma of the eyelids, naso-pharyngeal

adenoid growths, chronic enlargements of the tonsils and nasal mucosa

Malignant lymphadenomata are produced by causes distinct from those of the first class, since the causes continue to operate with indefinite cell-proliferation as end-product. He would differentiate this variety from lympho-sarcoma, since the latter does not remain confined to lymphatic tissue, but involves neighboring tissues. Dr. Spencer remarks that an additional point of difference is the frequent curability of this type by the use of arsenic, particularly if the major part of the growth can be removed by surgical interference.

The third class of Dr. Spencer, lymphadenomatosis, is most broad, including cases in which the spleen, thymus, bone-marrow, intestinal lymph-plaques and follicles, and skin, are involved, together with constitutional symptoms, as fever, cachexia, anemia, hemorrhage, swollen gums, and perhaps increase of leucocytes. The class includes groups to which clinical terms as follows have been assigned: "lymphatic cachexia," "anæmia splenica vel lymphatica," "splenic, lymphatic, or myelogenous leucocythemia," "Hodgkin's disease," "multiple lympho-sarcoma," etc.

Closure of the Coronary Arteries —

Porter (*Journal of Experimental Medicine*, 1896, No. 1) has experimentally investigated upon dogs the relation of closure of the coronary arteries to sudden cardiac arrest. The importance of coronary disease in instances of stoppage of the heart's action has long since been clinically established, but its exact mechanism has not been finally determined. Porter attributes the cardiac paralysis to anemia, as the coronary vessels are essentially terminal arteries. Stoppage of the heart by mechanical insult incident to the operation was excluded. The frequency of arrest was inversely proportional to the amount of destruction of heart muscle.

Acromegaly —

Roxburgh and Collis (*British Medical Journal*, July 11, 1896) report a case, with autopsy. The patient, a woman aged 35, began to notice enlargement of the hands and feet six or seven years before the time of death, and three or four years later her vision began to fail—double optic neuritis was found on examination. The size of the extremities at this time was not such as to attract attention. When seen in December, 1894, she showed to a marked degree the typical enlargement of the extremities and face, and six

months later she was found to present blindness of the left eye and nasal hemianopsia of the right. She was also greatly afflicted with drowsiness, followed by persistent headaches, which endured until her death in September, 1895. About two weeks before death she became totally blind and lost the sense of smell.

The autopsy showed a greatly enlarged thymus, but normal thyroid gland. The pituitary body which was the size of a walnut, was very soft and vascular. The dura mater of the sella turcica had entirely disappeared, and the bone here presented an irregularly eroded and vascular appearance. The irregularities were filled with extensions of the pituitary growth. The mass had so pressed upon both optic tracts and the chiasma as to cause total disappearance of the left tract and partial destruction of the right. On the left side of the mass there was a blood clot the size of a large pea.

THERAPEUTICS

UNDER THE CHARGE OF N. S. DAVIS JR. A.M., M.D.

Professor of the Principles and Practice of Medicine and of Clinical Medicine, Northwestern University Medical School Chicago

Tannalbin as an Intestinal Astringent —

Von Engel (*American Medico-Surgical Bulletin*, March, 1896) says tannin would meet all the requirements of a good intestinal astringent were it not for the fact that it unites with albuminous substances, and exerts an immediate astringent action upon the stomach when introduced into this organ in a soluble form.

Dr. Gottlieb, of the Pharmacological Institute of Professor von Schroeder at Heidelberg, has prepared a tannin albuminate, named "tannalbin," in which these objectionable features are overcome.

Ordinary tannin albuminate dissolves in the acid gastric juice with the greatest readiness, but after being subjected to long-continued heating at high temperature it is rendered almost or altogether proof against gastric digestion. Should the heating be continued too long, however, the albumin compound is rendered very difficult of solution in alkalies and resistant to pancreatic digestion. It has been determined by experiment that heating for five or six hours at 110° to 120° C. is sufficient to insure the passage of the compound through the stomach and its disintegration in the intestine.

The tannin albuminate, after heating, is a faintly yellow, tasteless powder, containing about 50 per cent of tannic acid. Over

tannin it possesses the advantage of remaining wholly inactive in the mouth and stomach, in the intestine, also, it is only gradually decomposed with the liberation of the inactive proteid components. In this way all of the tannin contained in the dose enters the intestine and, by virtue of the slight solubility of the preparation, should also reach the lower portions of the digestive tract.

Von Engel's observations cover forty cases and 118 days of administration. Injurious or disagreeable effects were never noted. After a few preliminary tests of dosage, it was found that one gramme could with perfect safety be administered to adults and older children, and one-half gramme to children under four years of age. These doses were adhered to in the whole series of cases, and, according to requirements, were repeated two to four times daily, so that the patients received up to four grammes within twenty-four hours. In the great majority of cases the remedy was given during three to four days, meantime the therapeutic results had been attained. In a few instances the periods of treatment ranged from five, seven, and twelve days to several weeks, the daily quantity amounting to two or three grammes, no evil effects were observed. The remedy failed in a few cases.

Tannalbin is odorless, tasteless, and agreeable to take. Aversion to its use has never been noted. None of the patients complained of nausea, gastric oppression, eructations, feeling of fullness, or any subjective symptoms referable to alteration in the functions of the stomach. The tannalbin was administered in dry powder form.

In uncomplicated chronic intestinal catarrh, tannalbin is a reliable remedy, producing most satisfactory results. It has been found decidedly beneficial in many forms of secondary catarrhal inflammation of the intestines. In diarrhea of phthisical cases it is also of much value. In severe and extensive anatomical lesions of the intestinal mucous membrane it is, of course, without effect. In acute diarrhea of a functional or catarrhal nature its action is admirable. Real cures, however, are but seldom effected, since the intestinal neurosis seems to be too deeply rooted in the organism.

Thyreoid and Bone-marrow Extract in the Treatment of Hodgkin's Disease —

M. B. Herman contributes to the *Memphis Medical Monthly* for February, 1896, the report of an interesting case of this disorder which he thinks was cured by these remedies. The patient was a married woman, 37 years of age, the mother of four children. Early

in 1894 it was noted that the axillary and cervical glands were enlarged. She was placed upon tonics, but did not improve. Fourteen months later she had lost considerable flesh, suffered from nausea and vomiting, her bowels were constipated, and she coughed incessantly, expectoration being scant, she had not slept for several nights, there was a moderate amount of dyspnea, and complete anorexia, she complained of severe pains in loins, back, and abdomen. The lymphatic glands on the left side of her neck were found to be very much enlarged and prominent, but distinct from one another, and quite elastic to the touch, while on the right side, besides numerous smaller ones, there was one the size of a guinea egg, the axillary glands were enormously enlarged on both sides, the mammary glands felt hard and lobulated. None of these glands were painful or tender to the touch. The inguinal and thyroid glands were unaffected. An examination of the viscera revealed a spleen moderately enlarged, the area of dullness reaching below the margin of the ribs, liver apparently normal, heart sounds normal, percussion sound over right lung normal, slight dullness at the apex of left lung. No other signs of disease in either lung were present. Morning temperature 99.4° , evening temperature 102.2° , pulse 120 and weak. There was a fistulous opening on the anterior and left side of the chest, near the axilla, discharging a sero-purulent fluid. Anemia was well marked. The left arm was edematous. Examination of the blood showed a moderate leucocytosis and some *poikilocytosis*. The sputum and discharge from the sinus showed an absence of tubercle bacilli. The urine was normal in quantity, acid in reaction, of 1.018 specific gravity, and free from albumin and sugar. The pelvic organs were found to be normal, but she had not menstruated for several months.

She was placed upon arsenic, with iron, strychnine, and digitalis, but without benefit. One fresh sheep's thyroid was used daily, but after a short time she tired of them and would no longer take them. After this she was placed upon extract of bone-marrow and thyroid. From this time on there was rapid amelioration in all of the symptoms. The cough and night sweats ceased, and the glands rapidly diminished in size. Six months later she reported herself as feeling quite as well as she did before her illness. The enlargement of the glands had all disappeared.

Treatment of Chorea by Salicylate of Soda —

W. F. McNutt (*Pacific Medical Journal*, January, 1896) says that in the text books on practice and in the special works on dis-

eases of the nervous system, there seems to be no mention made of the salicylate in the treatment of chorea, the consensus of opinion being that arsenic is the only medicine that has a curative effect. The writer was recently called to see a lad of seven, who had been sick for two years, the medicine prescribed by the family physician having given no relief, he had not slept much for several nights, on account of the constant jerking, the mother was alarmed that the child was losing his mind, as he talked at random and had night terrors, he was no longer able to walk, and had to be kept in bed. It was an aggravated case of Sydenham's chorea. Up to a few days before, the child had been able to walk, though very irregularly, and would sometimes fall. The movements had become general, he could no longer feed himself or leave his bed. He was quite anemic, his speech was affected, and there was pronounced psychical disturbance. He was a bright boy, but had never been very robust.

After enjoining rest, separation from noise of other children, fresh air, sponge baths, and light diet, Dr McNutt prescribed bromide with chloral and arsenic pellets. This treatment was continued for one week, but as the child did not improve, and was complaining of a pain in his ankle, it was changed to

R	Sodium salicylate	..	.. 2 drachms
	Syrup of wintergreen	..	.. 1 fluidounce
	Water	..	q s ad 2 fluidounces

M Sig Twenty drops each hour for six hours, and thirty drops each two hours thereafter

The improvement within the next forty-eight hours was marvelous. With the exception of some jerking of the right shoulder and an occasional twitch of the facial muscles, the chorea had ceased.

Thymus Gland in the Treatment of Exophthalmic Goitre —

Todd (*British Medical Journal*, July 25, 1896) reports one of the few recorded cases in which the results of the above treatment were excellent. The patient was a delicate girl of 22, and the disease was well developed and typical in every way. She had been treated at different times with iron, belladonna, arsenic, digitalis, strophanthus, and other drugs, besides various local applications, without more than slight temporary benefit.

On September 29, 1895, the pulse was 156 and very irregular both in force and frequency, apex beat visible in sixth interspace, $1\frac{1}{2}$ inches inside of nipple line, heart sounds irregular and tumultuous, but no definite murmur could be made out, pulsation in cardiac area very violent, thyroid symmetrically enlarged, with

evident pulsation, and a loud bruit audible over it, exophthalmos marked but not excessive, Von Graefe's sign not well marked. She was much distressed by the palpitation, and suffered greatly from insomnia. Thirty grains of dried thymus in the form of tablets were given daily, and on the third day the pulse had fallen to 130 and was quite regular. The treatment was continued, the amount of thymus being gradually increased to 100 grains daily, and at the end of three weeks the pulse had fallen to 73 and was regular, the pulsation over the cardiac area and the thyroid being very much less. The size of the thyroid was not diminished, but the exophthalmos was less marked. The patient felt much better, was able to sleep, and took food well. At one time she was without the drug for three days, during which time she did not feel so well.

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN, A.M., M.D.,

Professor of Clinical Gynecology in the College of Physicians and Surgeons, Chicago. Professor of Gynecology in the Post-Graduate Medical School, etc.

Concerning Vaginal Fixation —

Much attention is given this subject just now, both abroad and in this country, and many modifications of the former technique are devised to obviate the unfortunate effects the procedure has upon pregnancy and labor.

E. Wertheim has been writing in the *Centralblatt für Gynäkologie* (February, 1896) upon his collective investigations of the work of Dührssen, Graefe, Strassman, and others, and his conclusions are that vagino-fixation as generally performed is a proceeding of great danger in subsequent pregnancy or labor.

So many cases end in abortion, and in those which result in labor at term so many difficulties are encountered, as to demand that the operation be either distinctly modified or altogether abandoned.

He describes a typical case occurring in his own practice, and illustrates by means of diagrammatic drawings the conditions obtaining in the pelvis.

The points of interest are in the extreme distention and attenuation of the posterior uterine wall (A), the height to which the cervix (B) is carried, the hypertrophy of the anterior uterine segment and fundus (E), which appears as a tumor crowding low down into the niche-shaped space formed by the anterior vaginal wall¹ (A,

ligament and a portion of the adjacent broad ligaments at a point one or two centimeters from the horn of the uterus

5 Passing a transverse suture across the anterior surface of the uterus midway between the os internum and the fundus

6 Carrying the round-ligament fixation sutures through the vaginal flap on either side at a point corresponding to the lateral sulcus of the vagina immediately behind the pubic arch, and carrying the uterine fixation suture through the vaginal flaps one centimeter from their margin

7 Closing the peritoneal slit with a continuous catgut suture

8 Closing the vaginal wound by a continuous catgut suture

9 Fixation sutures to be removed at the end of three or four weeks

PEDIATRICS

UNDER THE CHARGE OF W S CHRISTOPHER, M D,

Professor of Diseases of Children, Chicago Polyclinic, Professor of Pediatrics, College of Physicians and Surgeons, Chicago

Cerebellar Softening in Infants —

Vincent Dickinson and S Russell Wells (*The Lancet*, August 22, 1896) report the case of a male born June 14, 1894. The father was in good health, and there was no history of syphilis. There was tubercle in the mother's family. The child was delivered by breech presentation at full time, the labor was rapid, and nothing abnormal was noticed about the cord or placenta. The child was not nursed and was weakly, but nothing attracted attention until two days after birth, when he began to have screaming fits. Five days after birth he is stated to have had five successive attacks of unconsciousness. These never recurred, but the child remained weakly, had frequent screaming fits, was never seen to smile or look bright or play as other infants, the eyes were lustreless, and he did not seem to take notice of objects. In September, 1894, the case came under the notice of Dr Ridley of Woking, who writes "I found the child in a very curious state—in fact, I did not expect it to live. It only weighed eight pounds, and was a most sad object and had all the appearance of a syphilitic child, it had screaming fits, slight attacks of convulsions, profuse sweating of the head, and pyrexia—one day 103°, next day normal, and no cause for this. There never was any diarrhea or vomiting, and the child took food well, but the wasting was so great that I put him on Mellin's food, cream, and bromide, the result being a steady increase of weight, but the child

took no notice of anything, was highly irritable, screaming and fighting with its clothes till it broke all its nails. There was no evidence of rickets or scurvy. My own opinion was that I had to do with a highly neurotic child, possibly tuberculous, with defective cerebral development. "The child is liable to eczema at times." Subsequently he was seen by Dr J. A. Coutts on account of blindness and attacks like those of laryngismus. He did not consider the child was entirely blind, and the ophthalmoscope revealed nothing definite. The attacks were described as sometimes those of a prolonged "faint," at others like those of severe laryngismus stridulus. The knee jerks were rather easily elicited for a child so young. There seemed to be no peripheral cause for the attacks. His condition seems to have improved after this, he became more quiet, took his food well, and showed no evidence of any gastrointestinal disturbance.

When the child first came under the notice of Drs Dickinson and Russell, on February 10, 1895, he was emaciated and very pallid, lying with his eyes open or with but slight drooping of the lids, the eyes moved laterally slowly, but never seemed to fix any object, nor could his attention be excited to do this. A light moved about before the eyes was not followed but the pupils, which were small, contracted very slightly under its influence. The child seemed to be sensitive in a moderate degree to sound. From time to time with a cry of pain the back was arched and the head thrown back, but there was no marked rigidity of the upper part of the erector spinae. Examination of the chest revealed nothing abnormal. There seemed to be no paralysis or rigidity of the limbs. The child took food well, and the evacuations were healthy. The temperature was 104° and the pulse 200. On February 14 he was in much the same state. Dr Cheadle saw him in consultation, and suggested the condition might be recurrent influenza, which was prevalent at the time in epidemic form. Two grains of hydrochlorate of quinine were ordered every four hours with brandy, but this did not reduce the temperature below 99.6° , which was reached on one occasion only. On February 16 a long convulsive attack occurred affecting the head, arms and legs, the temperature rising to 106.4° . The state of pyrexia and gradual enfeeblement, but without convulsions, continued till death. On February 28 several convulsive attacks occurred, the temperature fell to 99.4° . Death occurred on March 1.

Necropsy —All the organs were found to be normal until the skull was opened, when the brain, which was carefully examined, presented the following condition. The greater part of the cerebel

lum was softened and had the consistence of thick cream and was of a dirty white color. The only parts of the cerebellum that were healthy in texture and appearance were the flocculus and tonsil on either side, the inferior vermiform process, a small part of the digastric lobe on the right, and on the left most of the lower surface of the lateral hemisphere. From this it will be seen that nearly all of the right side of the cerebellum was softened and all the upper part of the left. In the pons there was an area of softening on the right side below, which was strictly limited by the medium septum, destroying about half the thickness of the pons on that side. This softening extended upwards, and by a vertical section at the level of the corpora quadrigemina it was seen that while these bodies themselves were healthy there was an area of softening in the pons

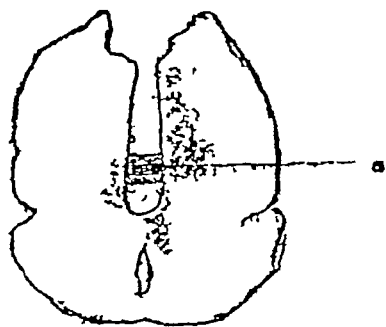


FIG 1 —Section slightly posterior to middle commissure, showing (a) anterior limit of softening

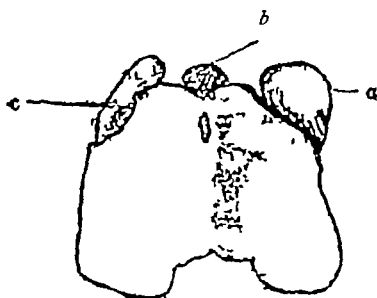


FIG 2 —Vertical section through pons at the level of (a) anterior corpora quadrigemina (b) pineal gland, (c) optic thalamus



FIG 3 —Vertical section through pons at the level of (a) the posterior corpora quadrigemina

at this level on the right side (*vide* Figs 2 and 3) The upper limit of the lesion extended as far as the optic thalamus, which was softened on its inner aspect on the right to about midway between the posterior and middle commissures (Fig 1) The rest of the brain, with the medulla, was normal Microscopically the usual appearances of white softening were found No tubercle, new growth, or active inflammatory change could be discovered On examining the vessels at the base a block was found in the basilar artery at its bifurcation into the posterior cerebrals, and the right superior cerebellar was obliterated forming a mere cord, while the left appeared to be pervious although the part of the basilar from which it arose was filled with clot The basilar artery was carefully removed and longitudinal microscopical sections made of it with the contained clot On microscopical examination at the bifurcation an old organized blood clot was found This mass, both from its position and the way in which it was wedged into the two posterior cerebrals strongly suggested an embolism, and the fact that it was organized and certainly of some age lent support to this view Extending from the ends of the plug for a short distance into each posterior cerebral was a much more recent clot, and a similar clot of recent origin extended backwards to about the middle of the basilar artery Obviously here was first an embolism of the basilar occurring at its bifurcation, and then secondary thromboses leading to obstruction of the posterior cerebral and superior cerebellar arteries, and, consequently, softening of the superior parts of the cerebellum and the area in the pons The left superior cerebellar artery was supplied with blood by some anastomoses which happened to be more free in this particular case on that side

This case presents unusual interest, not only on account of the rarity of cerebellar softening, but also because of the clinical aspect, which afforded no clue to the presence of a well defined gross lesion in the brain

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T PATRICK, M.D.

Professor of Neurology in the Chicago Polyclinic; Consulting Neurologist to the Illinois Eastern Hospital for the Insane

Rabies —

Sweeney and Denney (*Northwestern Lancet*) report three cases of rabies

The first patient was a man of 57 years The period of incubation was about sixty days, and the first symptoms were a feeling of

vous system was also negative. A rabbit was inoculated, but died at the end of four days from other causes.

Case 3. A man of 26 began to complain of pain in the right arm and shoulder and side of the head, and to be restless and sleepless, ten or eleven weeks after having been bitten on the right wrist by a small, stray dog. After about a week he was found to have slight fever at times and complained of some difficulty in swallowing. During the next few days he became more restless, semi-delirious, did not sleep at all, the difficulty in deglutition increased, and he frequently ejected large mouthfuls of frothy, tenacious saliva. This was followed by a maniacal condition. When asked to swallow some water, he took the glass in his hands, raised himself to a sitting position, and the lower lip twitched violently. As the glass approached his lips a violent spasm of respiration occurred, the patient taking a dozen rapid and shallow inspirations accompanied by a grunting noise, and finally he poured the water into his mouth, swallowed it with a gulp, and lay back exhausted. The effort was accompanied by considerable increase in the pulse-rate and considerable distress of mind. His intellect, when his attention was attracted by questions, was perfectly clear, but the moment he was left alone he wandered off to his delusions again. He ejected frothy and tenacious saliva at times upon the bed-clothes and floor, preferring that method to swallowing it. He rapidly became weaker—pulse 160, face somewhat cyanotic, delirium marked. He died comatose, having had no general convulsions.

The post-mortem examination, made twelve hours after death, showed a considerable excess of cerebro-spinal fluid and a marked congestion of the blood-vessels, which were prettily mapped out against the gray substance of the cortex. A rabbit was inoculated from the medulla, and is said to have died with symptoms like those of inoculated rabies.

Two individuals, bitten by the same dogs that were concerned in the above cases, were treated at a "Pasteur Institute" and have shown no signs of the disease.

Acute Delirium —

As the authors of the paper on "Rabies," just noticed, make no attempt at the differential diagnosis between the disease hydrophobia and other states characterized by rapidly appearing delirium, it may be interesting and instructive to consider in connection with their report two recent contributions to the subject of acute delirium. Coston (*Nashville Journal of Medicine and Surgery*, August,

1896) defines it as "a very acute febrile disease of the brain, usually fatal, attended by wild delirium, hallucinations, and great disturbance of motor functions" The cause is obscure, writings on the etiology being scarcely more than speculations It affects both sexes, is more frequent under thirty, and apparently bears no relation to heredity The onset is usually sudden and the first symptoms mental Three cases are detailed

Case 1, a girl of 15, with unimportant family and negative personal history, was, when first seen, restless and slightly delirious, using uncouth language, and complaining bitterly of pain in her head, and also of more or less pain in her hips and back There was great motor excitability, the patient desiring to be in constant motion, and occasionally cursing and abusing those about her Morphine and bromides failed to quiet her The next day she was rather worse—temperature 101° , pulse 100—and constantly talked irrationally, using the foulest language, but recognized every one There was absolute anorexia, but no vomiting and the urine was normal She was very destructive After 30 grains of chloral she slept five hours, but awoke more restless and destructive than before Fifteen grains of the same drug induced comparative quiet, but she was soon as bad as ever Sulphonal, trional and paraldehyde were tried, but large doses of hyoscyne hydrobromate were most successful, one-twentieth of a grain producing six to eight hours' sleep She gradually became weaker and, *pari passu*, the delirium less violent, and died on the thirteenth day The highest temperature was 102° , the lowest 100.5° , and for a few days preceding death she seemed to be blind, the pupils were widely dilated

Case 2 was a girl of 13, with good family and negative personal history, who had never menstruated, but showed signs of approaching puberty The character of the onset is not stated When first seen she was wildly delirious, violently and constantly agitated, very profane, and complained bitterly of headache The temperature was 100.5° , pulse 110 It was thought at first to be hysteria, but she did not improve, and died suddenly at the beginning of the fifth day while sitting up

There was no autopsy in either of these cases

Case 3, a stout country girl, aged 20, of good heredity, and with unimportant personal history, was taken, while at church, with what was thought to be a chill, but the shaking tremor and slight delirium continued, and she was seen on the third day by the reporter She recognized acquaintances, but "drifted into all kinds of foolish talk," and could not remember having seen a person a

few minutes before, temperature 101° , pulse 100 The body and extremities were in constant motion This physical agitation was in some degree controlled by morphine, which had no effect on the delirium unless it were to make it worse She continued *in statu quo*, except that she lost weight rapidly She was given sedatives and hypnotics, but hydrobromate of hyoscine, never less than one-fiftieth of a grain, produced the best results At the end of a week the physical agitation was somewhat improved, but she continued to lose strength for about three days longer, the temperature varying from 100° to 103° , with pulse from 100 to 150 At this time she was found to be totally blind, though hearing and smell remained very acute The amaurosis lasted four days and then gradually improved Mental improvement began a week later than the physical betterment, both gradual, and so continued until complete recovery, with the exception of one slight relapse, but there was still some jerking, especially of the right arm and hand, under excitement

The author calls especial attention to the occurrence of great physical agitation, rapid exhaustion, hyper-acuity of hearing and smell, blindness, and vesical weakness which often requires the use of a catheter The patient recognizes persons, but talks irrationally and forgets immediately having seen one

As to differential diagnosis from acute mania, the author has the following to say

“Acute delirium and acute mania are frequently mistaken for each other, and their diagnosis from each other is somewhat difficult to make, but with care we may differentiate them The symptoms of acute delirium are much graver, the course briefer and more definite The temperature is elevated in acute delirium, and lowered in mania The exhaustion is very rapid in acute delirium, while the maniac will continue to rave for months with little perceptible loss of strength Mania is a conscious delirium, the patient being aware of what he is doing and taking every advantage of you, acute delirium is an unconscious delirium, the patient never trying to take any advantage of you, and, although he recognizes you, five minutes later he does not remember to have spoken to you In mania the appetite is often enormous, in acute delirium it is always absent Mania is preceded by marked prodromata, the prodromata of acute delirium are never very marked and are often absent In mania the face is often flushed and the sclerotic injected, in acute delirium the face is pallid and there is no injection of the sclerotic Acute delirium will terminate in death or recovery in two or three weeks, mania will require months ”

Babcock (*Medical Record*, August 1, 1896) first calls attention to the very great discrepancy in the percentage of cases of acute delirium admitted to different asylums for the insane. This varies from about one seventh of one per cent to four and seven tenths per cent, which enormous difference the author rationally attributes to the diagnostic tendency of individual institutions. The paper is especially devoted to a consideration of the nature of acute delirium, particularly its possible bacterial origin. The author accepts the classification of Wood into acute periencephalitis, and cases in which no lesion can be demonstrated but in which the affection is assumed to be one primarily of the cortical cells. The case reported is placed in the first of these two categories. The patient was a man, 46 years of age, of good family history, but addicted to the excessive use of alcohol and tobacco. Ten days before admission he became restless, sleepless, and talkative, and later was at times violent. On admission he talked almost constantly and entirely incoherently, was physically agitated, and it was impossible to attract his attention. The temperature was 99.6°, pulse 80, urine practically normal. Patellar reflexes were absent. After the administration of 20 grains of sulphonal, he slept seven hours, and awoke with normal temperature but as delirious as before. He continued in much the same condition the temperature being usually normal until the twenty second day of the disease, when the delirium increased. The temperature rose to 100.2°, pulse to 100, and a trace of albumin appeared in the urine. Sulphonal failed to produce sleep, and hyoscine was substituted with good results. He remained in the same condition till the twenty ninth day, when lumbar puncture was performed with apparently some transitory relief. He then gradually grew weaker, passed into a typhoid state, and died on the forty sixth day of the disease, greatly emaciated.

Eight minutes after death spinal puncture was again done, and 66 cubic centimeters of turbid fluid collected. The post mortem examination showed macroscopic and microscopic signs of inflammation in the membranes of the brain and in the cerebral cortex. The fluid from the first puncture contained 2.25 per cent of albumin, and that removed after death 3.5 per cent, which is exceedingly high and would indicate acute inflammation. Bacteriological examination of the fluid showed the micrococcus of pneumonia and streptococci. Inoculation of rabbits caused symptoms of infection, but the experiment was not conclusive.

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LARYNGOLOGY AND RHINOLOGY.

UNDER THE CHARGE OF W E CASSELBERRY, M D,
Professor of Laryngology and Rhinology in the Northwestern University Medical School,
Laryngologist and Rhinologist to St Luke's Hospital, Laryn
gologist to Wesley Hospital, etc.

Acute Empyema of the Antrum of Highmore. The Question of Self-healing —

During the last few years the literature of chronic empyema of the antrum of Highmore has been exhaustive and profuse, but little has been said upon the subject of acute empyema, yet this form must be the more frequent of the two. Most of the cases, however, doubtless remain undiagnosed, both by reason of insufficient familiarity with the symptoms on the part of the profession, and also on account of negligence of patients who, unless the disease is very severe, let it pass as an ordinary acute cold in the head. Dr Avellis, Frankfort-on-the-Rhine (*Archiv für Laryngol und Rhinol*, bd iv, heft 2), describes two grades of acute empyema, the light and the severe form. In a case exemplifying the former variety the patient was examined fourteen days after having contracted a severe cold, great occlusion of the nostrils having developed six days after exposure. On examination a streak of pus could be seen crossing the median line of the septum above the inferior turbinated body, and upon washing out the antrum through a perforation made in the inferior meatus, pus was obtained. There was no pain in the region of the antrum—only an uncomfortable pressure in the nose. The patient recovered spontaneously in the course of from two to three months. In this case influenza seemed to bear no etiological relation to the empyema, although influenza is a common cause of acute inflammation of the antrum. The characteristic symptoms of the light form include pain upon pressure and a sense of tension within the upper jaw, and an irregular, purulent, oftentimes bloody discharge. The pain is intensified by sudden movements of the head, cough, etc. Ofttimes there arise slight edematous swellings of the cheek and eyelid, sometimes the edematous part is reddened. Supra-orbital pain is rare. A foul odor may or may not be present.

The severe form of the disease presents all of these symptoms, and in addition others of greater gravity, as related in the case of a patient, a physician, who became ill with influenza, suffering from dizziness, vomiting, loss of appetite, cold in the head, headache, and backache. Six days later he had a severe pain in the left upper jaw, which was transmitted to the top of the nose and to the fore-

head, and which gradually increased until the patient was confined to bed. There was tenderness on pressure over the antrum and upon the ball of the eye, with the sense of smell suspended, and a profuse discharge of pus. The temperature varied in the evening from 101° to 102° . The author calls special attention to the edematous swelling of the cheek and of the eyelid, which varies in extent but is to some degree nearly always present, and which is a valuable diagnostic sign. A few days later the patient became delirious and his speech incoherent, the end of a sentence being frequently forgotten. The examination was made about two weeks from the beginning of the affection. Both sides then seemed to be involved, and the diagnosis was rendered certain by a puncture through the inferior meatus upon both sides, when pus was obtained by syringing. There followed immediately thereafter mitigation of the symptoms, and in the course of a few weeks the patient had entirely recovered. One antrum was washed out several times, the other once only. In this severe case the evacuation of the pus seemed necessary to recovery. In the lighter forms of the disease, although the author has usually washed out a single time for diagnostic purposes, he thinks recovery will take place spontaneously. In his observation, only one case in ten assumes the chronic form.

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF WM. L. BAUM, M.D.,

Professor of Dermatology and Syphilology in the Post-Graduate Medical School, Chicago
Fellow of the Chicago Academy of Medicine

The Pathology of Itching, Its Treatment by Calcium Chloride —

Dr. Thomas D. Savill, in *The Lancet* of August 1, 1896, says that pruritus or itching must not be confounded with prurigo, which is pruritus with an eruption which has well defined characters. The use of the adjective "pruriginous" as synonymous with itching is not justifiable and leads to confusion.

Itching or tingling is a symptom of irritation of the peripheral nerve-endings in the skin or of the nerve fibrils, and may be produced with the greatest ease artificially by various mechanical or chemical means applied through the epidermis, the sensation is then transmitted along an afferent nerve trunk to the brain, where it becomes a perception. Tingling may sometimes be due to an injury or morbid condition of the nerve trunk itself, such as may be demonstrated on the "funny bone," though pronounced injury or disease of a nerve more usually gives rise to the perception we call

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Fellow of the Chicago Academy of Medicine

The Pathology of Itching, Its Treatment by Calcium Chloride —

Dr Thomas D Savill, in *The Lancet* of August 1, 1896, says that pruritus or itching must not be confounded with prurigo which is pruritus with an eruption which has well defined characters. The use of the adjective 'pruriginous' as synonymous with itching is not justifiable and leads to confusion.

Itching or tingling is a symptom of irritation of the peripheral nerve endings in the skin or of the nerve fibrils, and may be produced with the greatest ease artificially by various mechanical or chemical means applied through the epidermis, the sensation is then transmitted along an afferent nerve trunk to the brain, where it becomes a perception. Tingling may sometimes be due to an injury or morbid condition of the nerve-trunk itself, such as may be demonstrated on the "funny bone," though pronounced injury or disease of a nerve more usually gives rise to the perception we call

pain, excepting at the onset and conclusion of the nerve lesion. A slight degree of injury giving rise to tingling and itching is also seen when pressure on a nerve-trunk causes a limb to "go to sleep." The brain plays solely the part of a receptive organ, the only exceptional instance being the mistranslation of certain sensations—say of pain or touch in the illusions of some insane patients.

It may be said, therefore, that itching (*pruritus*) is always the expression—the symptom or evidence—of some irritation either of the nerve-endings or of the centripetal nerve-fibrils passing thence to the brain, or of both. In favor of its being, in some cases at any rate, the nerve-ending which is affected rather than the nerve-fibres, may be mentioned the fact that ulcers which do not itch in the granulation stage commence to do so as soon as the new epidermis begins to be formed over the surface at the edges. A case of reflex *pruritus* only differs in that the terminations or fibrils of sensory nerves are irritated other than the one to which the sensation is referred, as when tickling the soles of the feet makes a person itch all over the body.

Etologically considered, *pruritus*, or rather the peripheral nerve irritation on which it depends, may be primary, when eruption is absent or only appears secondarily, or secondary, where the itching accompanies or succeeds some manifest eruption on the skin.

The *pruritus* which forms so frequent an accompaniment of most skin disorders belongs to the secondary category. It is characterized—
 1 By the presence nearly always of an eczema or other local condition on which it depends, the only exceptions are the very rare cases when a disordered secretion or discharge gives rise to *pruritus* without also producing an eruption, if due to the crawling of parasites, they or their characteristic bites are also present.
 2 By being proportionate in severity to the degree and acuteness of the skin lesion, short of sloughing, when the sensory apparatus is destroyed, it is also in some degree proportionate to the "sensitivity" of the individual.
 3 By being usually strictly localized to the causal eruption, nevertheless, so intimately are the different parts of the nervous system connected that occasionally in sensitive persons it may be diffused, as when the persistent tickling of a bald head or the soles of the feet may make a person itch all over.

Secondary *pruritus* is readily explained by the involvement of the nerve-endings and fibrils actually in the skin lesion—congestion or inflammation—or, in the case of parasites, by the irritation of their claws and probosces. This is the simple mechanical explanation. The treatment is equally simple, and consists in the removal

of the cause The reason itching is absent in some strumous and syphilitic eruptions is probably either because they are frequently pustular and thus the sensory terminations are destroyed, or because the inflammation is of an indolent and chronic kind

Illustrations of primary pruritus—*i. e.*, a condition where itching is the principal and often the only symptom referable to the skin—may be found in jaundice and diabetes in the pruritus so frequently attacking the aged, in the itching after the hypodermic injection of morphine, in large doses and other drugs directly into the lymph or blood current, in the pruritus which follows unwhole some food, and especially shell fish or tinned meats—the itching in such circumstances being often attended by an urticarial eruption, though sometimes pruritus alone is present, and, as the author believes, an illustration of primary pruritus is also found in the disease variously called prurigo, lichen urticatus urticaria papulosa, etc., which, in his opinion, are names applied to the same disease varied by circumstances

What is the pathological change which produces this irritation of the sensory nerve-endings or fibrils? It may be remarked that it is hardly likely to be an actual disease of the sensory nerve endings or fibrils—a neuritis—else we should more frequently get symptoms referable to peripheral neuritis where none such occur, nor would the symptom of itching vary and even disappear, from hour to hour, as it often does What then, is the condition which, while it irritates, does not cause definite disease of these structures? Some say an abnormal dryness of the skin—an anhydrosis—is the cause of the nerve irritation, but although this dryness exists in some cases of pruritus, notably the itching of diabetes, it is very far from being a constant feature Moreover, it does not follow that because the surface of the skin is dry the nerve-endings in the deeper layers of the epidermis are also dry We know, too, that secretion is regulated by nerve influence, so that diminished secretion is rather an effect than a cause of the nerve irritation, or it may be in some cases that they are both the effects of a common cause Even in the pruritus of cold weather, which is pointed to in support of this theory, we find a readier explanation of the nerve irritation in the retention in the blood of products which ought to be eliminated by the skin

If we suppose some blood change as the causal factor of the nerve irritation in primary pruritus, we find an explanation quite in keeping with the facts of the many different circumstances under which cases of primary pruritus arise This view is supported by the following considerations

1 The nerve-endings and the nerve-fibrils are continuously bathed in the lymph, which, by the law of diffusion, corresponds in composition with the blood so far as its soluble and diffusible constituents are concerned

2 Primary pruritus is nearly always general, or at any rate diffuse, or if at all localized it frequently shifts its position, just as one would expect in a disordered state of the blood. Any attempt at localization is explained by its selecting those places most rubbed by the clothes or hands, as across the shoulders and on the extensor surfaces, and it must be remembered in this connection that scratching itself aggravates or may produce nerve irritation without the assistance of any blood change

3 Like a blood disorder, also, primary pruritus varies from hour to hour and day to day, even disappearing and reappearing, being nearly always worse after meals, when the blood is charged with a fresh quantity of, perhaps, imperfectly elaborated material. The author has seen several cases where the pruritus was diurnally periodic, starting after the evening meal, which was the heaviest of the day. These are not uncommon in the experience of others, and it seems to him that these, and the violent paroxysms of general pruritus that occur in the course of some diseases, can only be explained by the sudden pouring into the circulation of a shower of some poisonous or imperfectly elaborated product

4 Certain dietaries and articles of diet greatly aggravate the itching—notably sugar, malt liquors, and salt meat. Certain unwholesome articles, notably shell-fish and tinned meats, will actually determine an attack of pruritus, usually accompanied by, though sometimes without, an urticarial eruption. In some tinned preparations, blood-poisons (ptomaines) have been isolated, and in all these instances it is difficult to understand how they can produce irritation of the nerve-endings unless it be through the blood and lymph

5 An actual blood change is known to exist in the pruritus which attends jaundice, diabetes, gout, etc., and in all cases of pruritus careful inquiry will almost invariably reveal conditions which are attended by a blood change. For example, in the "nervous pruritus" which Mrs. Garrett Anderson referred to as frequent in women, and in men also who lead sedentary lives, there probably exists the double factor of a sensitive nervous system and an impurity of blood from deficient oxygenation

6 Certain drugs, notably morphine, injected subcutaneously in large doses into the lymph stream produce a general itching

7 The typical and usual eruption secondary to pruritus (if there be any eruption) is always of the same kind and consists of papules and urticarial or erythematous blotches. Skin eruptions resembling these two primary elements are known to be respectively produced by various drugs and blood poisons, thus, for example, the typical bromide rash is papular, and ptomaine rash is erythematous or urticarial.

8 The drugs which have hitherto been found most efficacious in pruritus are such as have either a sedative effect on the nerves or else a direct action on the blood. To the former belong chloral hydrate, cannabis indica, and gelsemium, which latter has been shown by Horsley to have a direct sedative action on the peripheral sensory nerve-endings. To the latter belong carbolic acid, recommended by Hebra, and the various tar products (antipyrin, phenacetin, etc.), which have a double action. These and a carefully regulated diet have hitherto been found most efficacious.

9 It was a line of thought indicated in the foregoing which suggested to the author in February last the idea of trying large doses of calcium chloride for pruritus, both primary and secondary, at the same time that he began to use it in urticarial and erythematous affections. (It has been shown by Professor Wright, of Netley, that this drug has a very marked effect on the blood by increasing its coagulability.) The marked success he has met with in thus relieving primary pruritus confirms the idea that the irritated state of the nerve-endings and fibrils which exists in this complaint and which manifests itself by the itching and tingling, is due to some change in the quality and composition of the blood.

This being so, the next question is: What is the nature of the blood change in primary pruritus? The answer to this question must, until our methods of research in blood disorders are more perfect, remain more or less a matter of conjecture. It may be excess of uric acid. Dr. Alexander Haig has stated that uric acidemia is very frequently attended by itching, and that when the uric acid is eliminated from the blood the pruritus and other subjective symptoms disappear. Another fact in favor of this view is the frequency with which "gouty" subjects are affected by pruritus. And, again, the beneficial effect which omitting meat from the dietary often has in the relief of itching is another point tending in the same direction.

As to the efficacy of calcium chloride in relieving the itching the patients themselves—who are in these circumstances the best judges—have no doubt whatever and are loud in their expressions

of gratitude The author has had many cases, and some are under treatment at the present time In all of the cases the itching was relieved, and the eruption, if any existed, disappeared at the same time He has, so far, not met with any absolute failures, though sometimes the dose has to be considerable and continued for several weeks In four cases a cessation of the remedy was attended by a return of the symptoms, which disappeared again on its resumption, all the surrounding conditions remaining the same all the while

The doses must be considerable—not less than twenty grains three times a day—and should be gradually increased, thirty and even forty grains have often succeeded where a less amount has failed The pharmacopœial dose is from fifteen to twenty grains If administered after meals and in a wineglass of water, it is surprising how little these large doses upset the stomach, and the author has never known them to produce vomiting Patients sometimes complain that the salt makes them thirsty, and to cover the taste it is best administered with a drachm of tincture of orange-peel and one ounce of chloroform-water, in which form it is really an agreeable medicine and would be well taken by children It is important that the diet at the same time should be regulated, no beer, sugar or sweets being allowed, and meat only in very moderate quantity Success may follow doubling the dose if twenty grains does not succeed The remedy seems to take longer to act in old people and inveterate cases When recovery is obtained the dose should be gradually, not suddenly, reduced, and it is very important that the remedy should be continued for at least one to three weeks after all symptoms have disappeared

GENITO-URINARY DISEASES

UNDER THE CHARGE OF G. FRANK LYDSTON, M.D.,

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Congenital Occlusion of the Urethra —

Dr Charles W. Allen, in the *Medical Record* of June 6, 1896, reports a case of congenital occlusion of the urethra, with operation for its relief

On April 19, 1895, there was born in the Maternity Hospital on Blackwell's Island a male child Upon the following day it was reported to the visiting surgeon, Dr Marx, that no urine had passed Examination showed that there was no meatus urinarius externus An incision was made with the expectation that this

would open into a channel, as is the case ordinarily. No opening was found, however, and the cut was extended somewhat deeper, and numerous attempts were made to force a passage through with a fine probe. Dr Walsh then saw the patient, and, likewise after careful examination, made ineffectual efforts to enter the canal. These gentlemen then kindly referred the case to Dr Allen, he being at the moment the only member of the City Hospital staff on duty. After a vain attempt to bore through from the external opening, and not knowing how far back the absence of the urethra might extend, he proposed to do an external perineal section, to which Drs Marx and Walsh assented. The operation was somewhat tedious, as the urethra was not easily distinguished from the other tissues, and, never having before operated upon a subject of this age, he preferred to go slow rather than to go wrong, and besides he wished to keep the perineal wound as small as might be. The bladder having been entered and the accumulated urine allowed to escape, after irrigation a probe was passed from the perineal wound into the proximal end of the urethra. The instrument became arrested in the middle portion of the pendulous urethra, and from this point on the tissues were simply bored through by forcing the instrument toward the artificial meatus already established. A section of a small sized bougie was fastened in the anterior urethra, brought up to about the calibre of a No. 9 French instrument. Antiseptic irrigations were made, and the perineal wound was packed with iodoform gauze. The case was transferred, according to the hospital rule, to the surgical service, where the author saw the patient about a week later in excellent condition. Urine was being passed by the urethra, as it had begun to pass upon the day following the operation, the perineal wound was almost closed, and instruments were being regularly passed to maintain the calibre of the anterior urethra.

The only history discoverable shows that on May 6 the child began to show a temperature of 103° – 104° , respirations running from 40 to 50 per minute, and was thought to have pneumonia, four days later, jaundice appeared, and Dr Herter saw the child with Dr Brewer. The urine was passed toward the close in very small quantity and was of a very dark brown color. Before death the temperature became subnormal.

The autopsy record showed Perineal wound entirely healed. Heart enlarged. Weight of left kidney, three ounces, right kidney, two ounces. The left kidney measured $2\frac{1}{2}$ inches in length and was lobulated, the hilus was distended with urine, as was also the

ureter The right kidney was two inches in length, slightly lobulated, capsule adherent in sulci The cortex of the kidney was pale yellow, and the normal markings were absent from the pyramids The ureter was distended with urine The bladder-walls were over one-eighth of an inch in thickness The urethra was pervious from the bladder to about one-fourth of an inch behind the glans penis

Dr Allen attended the meeting of the American Medical Association in Atlanta, where a paper was read by Dr Small, of Pittsburgh, upon "Retention of Urine in the Newly Born," during the discussion of which he inquired whether any present were familiar with this variety of occlusion without hypospadias or an opening somewhere for the escape of urine A glueing together of the urethral walls had been noticed by some, forming a temporary occlusion easily overcome, and the more common occlusion just at the meatus requiring simply a slight incision, but no such condition as above described

Absence of urethra in a considerable portion of its normal extent, or such a firm adhesion between the two halves of the canal as to entirely obliterate it, has been rarely observed Slight obstructions, due perhaps to inspissated secretions or to easily overcome stenoses, are not so rare, and a probe or small-sized catheter readily overcomes them Here, however, there was complete obliteration for a considerable distance, and the author believes he pursued the proper course in performing perineal section To have bored a way through from the meatus, not being able to determine at what point the patulous urethra would be encountered, if indeed the instrument did not escape it altogether and pass up alongside, seemed to him unsurgical and unwise

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ORIGINAL ARTICLES

THE CLINICAL SIGNIFICANCE OF THE CHILD'S FONTANELLE ¹

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The examination of the fontanelle is most extensively practiced by the obstetrician during parturition, for diagnostic purposes. It may be interesting also to consider its clinical significance during extra uterine life.

Six fontanelles present on the cranium of the new born child. The anterior, the largest, occurs at the junction of the sagittal and coronal sutures. The posterior, smaller in size, is situated at the junction of the sagittal and lambdoid sutures, in mature children this is not a space, but a shallow depression. The two antero-lateral are situated one on each lateral half of the skull, between frontal, temporal, and sphenoid bones, these are square and form the lower end of the coronal suture. The postero-lateral are situated between the parietal, temporal and occipital bones, these are also square.

In normally developed children all the fontanelles, with the exception of the anterior, close up during the first weeks of extra uterine life. The anterior remains open until the fifteenth or eighteenth month. In pediatric practice, reference to the fontanelle always means the anterior.

Palpation of the fontanelle in health gives a characteristic tension and elasticity. It does not rise above nor is it sunken below its bony borders. It presents a convex surface conforming in this respect to the general convexity of the vertex of the skull. It possesses respiratory and pulsatory movements rising during expiration

¹ Read before the Mississippi Valley Medical Association September 17 1896.

and falling during inspiration. The pulsation which occurs is synchronous with the heart's contraction, and depends for its existence upon the filling of the basal arteries, the wave thus generated is propagated in all directions, and is felt or even seen over the fontanelle, constituting the fontanelle pulse. If intra-cranial conditions cause a slight increase of tension, the pulse increases in intensity, if the tension is very greatly increased, the pulsation diminishes or disappears.

By auscultation over this region, one frequently hears a systolic bruit, also spoken of as a brain murmur. This was first described by Fisher, of Boston (1832). Some observers have claimed that this phenomenon occurs in perfectly healthy children, though the prevailing opinion favors the view that it is confined to the rachitic or anemic. It is heard after the third or fourth month, never after the sixth year. A perfectly satisfactory explanation of these murmurs is not at hand. According to Jurasz, they originate in the carotid canal, owing to the pressure which the carotid sustains in the narrow bony channel. Henning considers them venous bruits. In cases where there is an increase in intra-cranial pressure, with a tense protuberant fontanelle, the murmur disappears. This murmur is of varying intensity and acoustic quality, it may be soft and blowing in character, or rough and loud. In children where the fontanelle is nearly closed, a loud rough murmur is heard, in cases where it is still wide open, a soft blowing murmur occurs, it is rough and loud in infants who have large, rachitic heads.

Elasser maintains that the fontanelle increases in size up to the ninth month. This point is disputed by Kassowitz and others, who have shown by careful measurements that there is a slight gradual decrease up to the ninth month, and from this time on a more marked decrease in size until closure at the fifteenth or eighteenth month. In exceptional cases it has been observed that the fontanelle has closed as early as the fourth month in perfectly healthy children, hence early closure is not necessarily pathological, but this is not identical with an early synostosis of the cranial sutures. An early ossification interferes with the growth of the skull and with cerebral development, if it occurs in the antero-posterior diameter of the skull it causes the cranial bones to grow in a transverse direction, occasioning a brachycephalic skull, on the other hand, an early ossification of the sutures in the transverse diameter leads to a growth of the skull in the antero-posterior diameter, causing a dolichocephalic skull, an early synostosis involving many or all of the sutures produces the skull of the microcephalic idiot.

An increase in the dimensions of the fontanelle and retardation of its normal involution, occurs in (1) rachitis (2) hydrocephalus, and (3) any intra cranial disease which increases pressure, as, for instance, brain tumors

Changes which the fontanelle presents in rachitis The involution of the fontanelle is delayed in the severest cases it persists until the third or even the fourth year If closure has not already occurred at the inception of the disease, an increase in dimensions is observed, if it is in process of closure, retardation of the involution occurs If the rachitis be severe the bony surfaces contiguous to the fontanelle become softened, indeed membranous, as a result of the rachitic process, and thus the membranous area is increased in size The fontanelle now exceeds that of a normal child of the same age, the borders are not prominent nor bony hard, as in the normal, but soft and readily compressible.

Marked bulging and tension with loss of elasticity, is caused by an increase of intra cranial pressure, the result of a collection of fluid, this condition may be brought about by an increase in intermeningeal or intra ventricular fluids the causative agents may be inflammation, passive congestion, or a neoplasm The various forms of hydrocephalus present this condition, likewise purulent meningitis, cerebro-spinal meningitis, as well as exudations, hemorrhages, tumors, echinococcus cysts, and the apoplexy of the new born and the nursing

Now and again we see an excessive wedge shaped protuberance over the fontanelle which does not pulsate, this is indicative of a hemorrhage or a purulent meningitis

Slightly increased tension and bulging Slightly prominent fontanelles occur in consequence of increased intra cranial pressure in all the acute infectious diseases and in any febrile state which is of sufficient severity to cause a cerebral hyperemia, likewise from passive congestion caused by pertussis, as well as from chronic bronchitis or congenital heart disease

Abnormal retraction of the fontanelle The retraction is of great diagnostic importance it always indicates inanition, a decrease of the nutrient fluids of the body, whether caused by hemorrhage, diarrhea, or marantic conditions

The depression varies with the severity and nature of the case In favorable cases it may be temporary, passing away in a few days In the more severe cases it becomes progressively deeper, the cranial bones impinge one on the other and the eyes are deeply sunken This condition occurs most commonly in acute and chronic intestinal

affections with diarrhea, and in infantile atrophy, whether caused by tuberculosis, syphilis, or diseases of the alimentary canal, and also from the prolonged and exhausting effects of the acute infectious diseases

In marantic sinus thrombosis, one finds the fontanelle soft and sunken, the bony margins impinging on one another. Gerhardt states that where a hydrocephalus or meningeal or intra-cerebral hemorrhage ensues from sinus thrombosis, the fontanelle can after a period become tense and bulging, the cranial bones pushed out, and the sutures separated.

Value in differential diagnosis The tension, bulging and depression of the fontanelle have value as points in differential diagnosis.

If cerebral symptoms complicate any of the acute infectious diseases, as is not infrequently the case in pneumonia or typhoid fever, palpation of the fontanelle has an important diagnostic significance. If the fontanelle be normal or retracted, we may assume that we are not dealing with an inflammatory condition of the brain, but that the cerebral symptoms are primarily due to an extra-cranial disturbance.

In the so-called hydrocephaloid, a terminal condition of cholera infantum, after the intestinal symptoms have subsided, marked cerebral symptoms occur, such as coma, convulsions, sighing respiration and Cheyne-Stokes breathing, the fontanelle is always retracted. Numerous autopsies made in these cases have been negative so far as the brain was concerned. A deeply sunken fontanelle has not only diagnostic, but also prognostic value; it is always a danger signal indicative of a severe anemia and a serious loss of fluids from the body.

In the differential diagnosis between pneumonia and meningitis, of whatever kind, in children, a study of the protuberance and tension of the fontanelle is a valuable aid. In incipient pneumonia or during its course, cerebral symptoms with retraction and rigidity of the neck not uncommonly occur, so that the most adept clinician will sometimes withhold his diagnosis. A tense protuberant fontanelle points to meningeal inflammation, one that is soft and compressible suggests its exclusion. This differentiation applies also as between meningitis and typhoid fever, or meningitis and uremia.

SUMMARY

1. Involution of the fontanelle occurs normally from the fifteenth to the eighteenth month. From birth to the ninth month

the fontanelle decreases gradually in area and from this time till complete closure the decrease is more rapid. Retardation of normal involution indicates rachitis or hydrocephalus.

2 The fontanelle presents pulsatory and respiratory phenomena. The pulsation increases if the tension is slightly increased, diminishes, or is lost if the tension be greatly increased.

3 A murmur over the fontanelle occurs in a certain number of children, most commonly in those who are anemic or rachitic. It is not pathognomonic.

4 A slightly prominent and pulsating fontanelle indicates a cerebral hyperemia such as occurs in fevers.

5 A protuberant and tense fontanelle indicates an exudation or inflammation in the cranial cavity.

6 Retracted fontanelle indicates a condition of collapse brought about by acute intestinal disease with profuse watery discharges, infantile atrophy from any cause, hemorrhage, effects of prolonged acute infectious disease, or marantic sinus thrombosis.

7 In acute infectious diseases with meningeal symptoms, examination of the fontanelle shows no protuberance or tension, whereas in true meningitis these conditions are marked.

8 In the so-called hydrocephaloid, a terminal condition of cholera infantum, marked by the occurrence of striking meningeal symptoms, the fontanelle is retracted.

THE PHYSICIAN AS A VICTIM OF HUMOR.¹

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A topic of this kind has most interest from the standpoint of the evolution of the profession. Like every other beneficial institution, medicine early had to suffer from the myth of the Golden Age which created that philistine view of the physician thus voiced by Dryden

"The first physicians by debauch were made,
Excess began, and sloth sustained the trade
By chace our long-liv'd fathers earned their bread,
Toil strung their nerves and purified their blood
But we their sons, a pampered race of men,
Are dwindled down to threescore years and ten
Better to hunt in field for health unbought,
Than fee the doctors for a nauseous draught.
The wise for cure on exercise depend
God never made his work for man to mend "

Goethe gives the following prescription for long life

"The method is revealed
Without gold, or magic, or physician,
Betake thyself to yonder field,
There hoe and dig, as thy condition,
Restrain thyself, thy sense and will,
Within a narrow sphere to flourish
With unmixed food thy body nourish,
Live with the ox as ox, and think it not a theft
That thou manur'st the acre which thou reapest
That, trust me, is the best mode left
Wherby, for eighty years, thy youth thou keepest "

The fetichic prejudice against "doctors' stuff," unless it was of occult nature, supported the quack, but scoffed at the protests of the scientist as evidence of the ineradicable tendencies of physicians to disagree. The shyster has been a great supporter of this popular notion. Judges, notorious for reversals by the upper courts, gird at the physician with Pope's couplet

"Who shall decide when doctors disagree,
And soundest casuists doubt like you and me?"

Pope, despite his numerous mental limitations, a firm friend of the scientists of his period, applied this couplet to doctors of law

¹ Read before the Chicago Academy of Medicine, at its summer meeting, August, 1896.

and theology, not medicine, as its second line amply demonstrates Pope had no respect for society cads like Aaron Hill, who rose to fame by that flattery of women satirized in Mephistopheles' advice to the student

'To lead the women, learn their special feeling
 Their everlasting aches and groans
 In thousand tones
 Have all one source one mode of healing
 And if your acts are half discreet,
 You'll always have them at your feet.
 A title first must draw and interest them
 And show that yours all other arts exceeds
 Then as a greeting you are free to touch and test them
 While, thus to do for years another pleads
 You press and count the pulse & dances
 And then with burning sidelong glances
 You clasp the swelling hips to see
 If tightly laced her corsets be

Like most society physicians, Hill was a scribbling medical pharisee given to snap diagnoses on non medical data Of him it was well said

For physic and farces
 His equal there scarce is
 His farce is a physic,
 His physic a farce is "

He often made as ludicrous a fiasco as that of the story, antique as the pyramids, but well retold by Jeafferson¹

The simple villagers of Flintbeach had a firm faith in the strengthening effect of looking at a tipsy doctor They always postponed their visits to Doctor Mutchkin till evening then they had the benefit of the learned man in his highest intellectual condition Doorn t go to hel the mornin er can't doctor noways to speak on tllis er s had a glass was the advice given to a stranger not aware of the doctor's little peculiarities

Mutchkin was unquestionably a shrewd fellow although he did his best to darken the light with which nature had endowed him One day accompanied by his apprentice, he visited a small tenant farmer who had bilious fever After looking at his patient's tongue and feeling his pulse Mutchkin said somewhat sharply Ah, 'tis no use doing what's right for you if you will be so imprudent. — Goodness, Doctor! what do you mean?" responded the sick man I have done nothing imprudent. — What? Nothing imprudent? Why bless me, man you had green peas for dinner' — So I had sir But how did you find that out? — In your pulse, in your pulse It was very foolish Mind you mayn't commit such an indiscretion again It might cost you your life

The patient was impressed with Mutchkin's acuteness and so was the

¹ Book about Doctors

apprentice When the lad and his master had retired, the former asked "How did you know he had taken peas for dinner, sir? Of course it wasn't his pulse that told you " "Why, boy," the instructor replied, "I saw the pea-shells that had been thrown into the yard " The hint was not thrown away on the youngster A few days afterwards, sent to call on the same case, he approached the sick man, and, looking observant, felt the pulse "Ah-um, by Jove," exclaimed the lad, mimicking his master's manner, "this is very imprudent It may cost you your life Why, man, you've eaten a horse for your dinner " The farmer, infuriated at what he naturally regarded as impertinence, sent a pathetic statement of the result to Mutchkin On questioning his pupil as to what he meant by consuming so large and tough an animal, the doctor was answered "Why, sir, as I passed through from the yard I saw the saddle hanging in the kitchen "

In the Greek story of Menander, two thousand years before, the horse becomes a donkey, and the saddle a donkey's tail made into a fly-flipper lying under the bed

Hill and other society "medical men" practiced the church dodge of that remote antiquity when, after the separation of medicine from theology, the theologians favored physicians who most kotowed to them By the middle of the eighteenth century the dodge was so hackneyed that Smollett remarks anent Ferdinand Count Fathom

The means used to force a trade, such as ordering himself to be called from church, alarming the neighborhood with knocking at his door at night, receiving messages in places of public resort, inserting his cures by way of news in the daily papers, had been so injudiciously hackneyed by every desperate sculler in physic that they had lost their effect on the public and therefore were excluded from the plan of our adventurer He should acquire interest to erect a hospital, lock or infirmary by the voluntary subscription of his friends—a scheme which had succeeded to perfection with many of the profession who had raised themselves to notice upon the carcasses of the poor Yet even this branch was overstocked, insomuch that every street was furnished with one of these charitable receptacles which, instead of diminishing the taxes for the maintenance of the poor, encouraged the vulgar to be idle and dissolute by opening an asylum to them and their families from the diseases due to intemperance

Certain practitioners (regarding medical ethics as a product of a code instead of an evolution from principles older than, but formulated by, Hippocrates) must be much surprised at the eighteenth-century stigma of advertisement by inserting "cures by way of news " Such practitioners forget that newspaper advocacy of the advertising "doctor" as a man of progressive ideas sounds equally absurd to the student of newspaper evolution who has read eighteenth-century English newspaper puffs of quacks In the eighteenth century more than one satirist lashed the practice Even the gentle

Oliver Goldsmith used these "enterprising" medical men as the following extreme comparison for contempt

As puffing quacks some catiff wretch procure
To swear the drop or pill had wrought a cure

In his *Chinese Letters*, Goldsmith satirizes even more severely quack advertisements of his day as mendacious as in ours Crabbe, in the "Borough" lashed their use of "cured and grateful patients"

' But now our quacks are gamesters and they play
With craft and skill to ruin and betray
With monstrous promise they delude the mind
And thrive on all that tortures humankind
Void of all honor avaricious rash
And twenty names of cobblers turned to squires
Aid the bold language of these blushless liars
And then in many a paper through the year
Must cures and cases oaths and proofs appear—
Men snatched from graves as they were dropping in '

Although the church dodge in Smollett's time had become hackneyed, an early eighteenth century replica of the modern church dodger society physician—Dr Mead—was brought into practice by a sect of which his father was a minister His servant called him out from church, while his father took part in the dodge by asking the congregation to pray for the bodily and spiritual welfare of the patient to whom his son had just been summoned Religion in Mead, as in most "church dodgers," was religiosity with its inevitable erotic features Mead was a masochist who derived intense pleasure from combing the hair of nude females He was a regular visitor at the Turk's Head on Gerrard Street, where the waiter had a standing order to supply him with females having fine heads of hair that he might indulge his passion for combing¹

When church dodgers like Mead secured credit with churchgoers, it is not astonishing that a popular proverb ("Three physicians, two atheists") stigmatized medical scientists as anything but devout. This evidently influenced Hawthorne's picture of the Puritan medical men²

Skillful men of the medical and chirurgical profession were of rare occurrence in the colony They seldom it would appear partook of the religious zeal that brought other emigrants across the Atlantic. In their researches into the human frame, it may be that the higher and more subtle faculties of such

¹ Jefferson Book about Doctors

² The Scarlet Letter

men were materialized and that they lost the spiritual view of existence amid the intricacies of that wondrous mechanism which seemed to involve art enough to comprise all of life within itself. At all events the health of the good town of Boston, so far as medicine had aught to do with it, had hitherto lain in the guardianship of an aged deacon and apothecary whose piety and godly deportment were stronger testimonials in his favor than any that he could have produced in the shape of a diploma. The only surgeon was one who combined the occasional exercise of that noble art with the daily and habitual flourish of a razor.

Oliver Wendell Holmes,¹ agreeing to a certain extent with Hawthorne, but less biased by the nineteenth-century-culture standard, remarks that

The early American physicians brought with them many Old-World medical superstitions, and they were more or less involved in the prevailing errors of the community in which they lived. But, on the whole, their record is a clean one so far as we can get at it, and when it is questionable we must remember that there must have been many little educated persons among them, and that all must have felt to some extent the influence of those sincere and devoted but unsafe men, the physic-practicing clergymen who often used spiritual means as a substitute for temporal ones, who looked upon a hysteric patient as possessed by the devil, and treated a fractured skull by prayers and plasters, following the advice of a ruling elder in opposition to the unanimous opinion of seven surgeons.

To what result the union of the two professions was liable to lead, may be seen by the example of that learned and famous person, Cotton Mather, who has left the literary product of his labors in the double capacity of clergyman and physician. The divine takes precedence of the physician in this extraordinary production. He begins by preaching a sermon at his unfortunate patient. Having thrown him into a cold sweat by his spiritual sudorific, he attacks him with his material remedies, which are often quite as unpalatable. The simple and cleanly practice of Sydenham, with whose works he was acquainted, seems to have been thrown away upon him. Everything he could find mentioned in the seventy or eighty authors he cites, all that the old women of both sexes had ever told him of, gets into his text or squeezes itself into his margin.

Evolving disease out of sin, he hates it, one would say, as he hates its cause, and would drive it out of the body with all noisome appliances. "Sickness is, in fact, *flagellum Dei pro peccatis mundi*."

Medical science should not be too hard on Cotton Mather. Sir Thomas Browne, the fulsomely belauded author of *Religio Medici*, was, like most medical hypocrites who adopt the church dodge, a very cheap demagogue in medico-legal matters. In 1664 Sir Thomas, "the collector of vulgar errors," examining as expert a "witch" subject to hystero-epileptic attacks, acknowledged that the "fits were natural and common," but denounced the woman as a witch,

alleging the "subtilties of the devil who had taken the opportunity to be co-operating with her malice" She was condignly burned This variety of charlatan to-day often attempts, like Samson, judicially to slay the homicidal insane with the jaw bone of an ass In agreeable contrast with Browne's demagoguery is the science of Zacchias, the medical jurist to the Pope, who, decades earlier, pronounced demoniac possession a disease Dr Wierus had earlier advanced the same opinion, as earlier still did Dr Reginald Scot

With all his fetichic notions of diseases, one of Cotton Mather's chapters on "Capsulas" is devoted to the 'animalcular' origin of disease, and at the end he says, speaking of remedies for this supposed source of distempers

Mercury, we know thee But we are afraid thou wilt kill us too if we employ thee to kill them that kill us

And yett for the cleansing of the small Blood Vessels and making way for the free circulation of the Blood and Lymph there is nothing like Mercurial Deobstruents

Mercury was evidently the subject of the same popular prejudice as exists to-day

The early American medical men, as Holmes shows, well deserved praise

The pilgrims of the Mayflower had with them a good physician a man of standing, a deacon of their church one whom they loved and trusted Dr Samuel Fuller But no medical skill could keep cold and hunger and bad food and probably enough homesickness in some of the feeble sort, from doing their work No detailed record remains of what they suffered or what was attempted for their relief during the first and winter The graves of those who died were leveled and sowed with grain that the losses of the band might not be suspected by the savage tenants of the wilderness and their story remains untold Of Dr Fuller's practice at a later period there is an account in his letter to Governor Bradford dated June 1639 "I have been to Matapan" (now Dorchester) he says and let some twenty of those people's blood'

Such wholesale depletion as this, except with avowed homicidal intent, is quite unknown in these days (except in Italy in spring time) though Holmes saw forty years ago Lasfranc, in a fine phlebotomizing frenzy, order some ten to fifteen patients taken almost indiscriminately to be bled in a single morning

Dr Fuller's visits to Salem, at the request of Governor Endicott, seem to have been very satisfactory to that gentleman Morton, the wild fellow of Merry Mount, gives a rather questionable reason for the Governor being so well pleased with the physician's doings The names under which he mentions the two per

sonages are not complimentary "Dr Noddy did a great cure for Captain Littleworth He cured him of a disease called a wife "

William Gager, who came out with Winthrop, "a right godly man and skillful chyrurgeon," died of a malignant fever not very long after his arrival

Dr John Clarke was the first regularly educated physician who resided in New England In his portrait, in close-fitting skull-cap, long locks, and venerable beard, his left hand rests upon a skull, and his right holds a trephine with a handle like that of a gimlet and having a claw to lift with The old trepan had a handle like a wimble, a brace, or bit-stock The trephine is not mentioned by Peter Lowes (1634), nor in Wiseman's great Surgery (1676), nor in the translation of Dionis published by Jacob Tonson (1710) It was brought into general use by Cheselden and Sharpe as late as the beginning of the last century John Clarke (who died in 1661), therefore, had the latest fashion of trephine in his hand, to say nothing of the claws on the handle A Hey's saw is painted on the table by him, more than a hundred years before Hey was born This saw, however, is as old as Hippocrates and was used by Scultetus and Ambrose Paré

This Dr John Clarke was the sire of a Massachusetts dynasty of physicians which still exists and threatens indefinite continuance There were no less than seven Dr Johns in the direct line of this dynasty

From the church dodge grew medical alcoholophobia, which first aimed at parsimony in the board wages of servants rather than reform of intemperance One of the earliest alcoholophobiacs has a name more nearly synonymous with venesection than the alcoholophobia which is the feature that most impresses his creator Le Sage ¹

Doctor Sangrado had acquired great reputation with the public by a pomp of words, a solemn air, and some lucky cures which had done him more honor than he deserved

He did not want practice, nor of consequence money, which however did not make us fare the better, his housekeeper being extremely parsimonious, our ordinary food consisting of peas, beans, boiled codlins, or cheese, which aliment (he said) was agreeable to the stomach as being most proper for trituration—in other words, easily brayed Notwithstanding his opinion, however, he did not approve of our eating a belly-full even of them, in which, to be sure, he was much in the right

But if he forbade his maid and me to eat a great deal, he allowed us by way of recompense to drink as much water as we could swallow Far from restricting us in this particular, he would sometimes say "Drink, my chil-

dren health consists in the suppleness and humectation of the parts. Drink water in great abundance it is a universal menstruum that dissolves all kinds of salt. When the course of the blood is too languid this accelerates its motion and when too rapid checks its impetuosity. The honest doctor was so well convinced of the truth of this doctrine that he himself drank nothing but water, though he was well stricken in years. He defined old age as a natural decay that withers and consumes us and in consequence of this definition deplored the ignorance of those who call wine 'the milk of old men' for he maintained that the juice of the grape wastes and destroys them and with great eloquence observed that this fatal liquor is to them as to all the world a treacherous friend and deceitful pleasure. In spite of all this fine reasoning I had not been eight days in the house when I was seized with a looseness and began to feel great disorder in my bowels which I was rash enough to ascribe to the universal dissolvent and meagre subsistence on which I lived. I complained of it to my master in hopes that he would relent and allow me a little wine at meals, but he was too much an enemy to that liquor to gratify my expectations. 'If thou feelst in thyself' said he to me 'any reluctance to the simple element, there are innocent aids in plenty that will support thy stomach against the taste of water: sage for example and balm will give it an admirable flavor and an infusion of corn poppy, gillyflower and rosemary will render it still more delicious.'

Notwithstanding all he could say in praise of water and the excellent beverages he taught me to compose I drank of it with such moderation that, perceiving my temperance he said 'Why truly Gil Blas I am not at all surprised that thou dost not enjoy good health. Thou dost not drink enough my friend. Water taken in small quantities serves only to disentangle the particles of the bile and give them more activity, whereas they should be drowned in a copious dilution. Don't be afraid my child that abundance of water will weaken and relax thy stomach. Lay aside that panic fear which perhaps thou entertainest, of plentiful drinking. I will warrant the consequence and if thou dost not look upon me as a sufficient bondsman Celsus himself shall be thy security. That Roman oracle bestows an admirable eulogium on water and afterward says in express terms that those who excuse their drinking of wine on account of a weak stomach do a manifest injury to that organ by using such a cloak for their own sensuality.'

As it would not have looked well for me to show myself intractable in the very beginning of my career in physic I seemed persuaded of his being in the right, and will even own I was effectually convinced so that I continued to drink water on the guarantee of Celsus or rather to drown my bile in copious draughts of that liquor and although I felt myself every day more and more incommoded by it, prejudice got the better of experience so happily was I disposed by nature for becoming a physician. I could not always however resist the violence of my disorder which increased to such a degree that I resolved at length to leave Doctor Sangrado but he invested me with a new employment which made me change that resolution.

Hark ee, my child said he one day. I am not one of those harsh and ungrateful masters who let their domestics grow gray in their service before they recompense them. I am well pleased with thy behavior. I have a regard for thee and without farther delay will make thy fortune. I will immediately disclose to thee the whole extent of that salutary art which I have professed so

many years Other physicians make this consist in the knowledge of a thousand difficult sciences, but I intend to go a shorter way to work and spare thee trouble of studying pharmacy, anatomy, botany, and physick Know, my friend, all that is required is to bleed the patients and make them drink warm water This is the secret of curing all the distempers incident to man Yes, that wonderful secret which I reveal to thee, and which nature, impenetrable to my brethren, hath not been able to hide from my researches, is contained in these two points—of plentiful bleeding and frequent draughts of water I have nothing more to impart, thou knowest physick to the very bottom, and, reaping the fruit of my long experience, art become in a twinkling as skillful as I am 'Thou may'st,' continued he, "ease me not a little at present in the morning thou shalt keep our register, and in the afternoon go and visit a part of my patients While I take care of the nobility and clergy, thou shalt go in my room to the houses of tradesmen where I am called, and when thou shalt have practiced some time I will procure thy admission into the faculty Thou art learned, Gil Blas, before thou turnest physician, whereas others prescribe a long time, generally all their lives, without becoming learned "

Consultations with such solemn pharisees as Sangrado inevitably had the farcical aspects presented by Molière ¹

Lizette What will you do, sir, with your doctors? Is not one sufficient to kill a person?

Sganarelle Hold your tongue, Miss Four counsellors are better than one

Lizette Cannot your daughter die more easily without the assistance of these gentlemen?

Sganarelle Do you think doctors kill people?

Lizette Without doubt I know a man who proved this, by incontestable reasons too, he maintained that one should never say this person died from a fever or from a fluxion of the lungs, but from four doctors and two apothecaries

Sganarelle 'Tut! Do not offend these gentlemen

Lizette Goodness, sir, our cat recovered from a leap it made from the housetop to the street below, and it neither ate nor moved a foot for the space of three days It is fortunate there are no cat-doctors, for pussy would have been finished up with purgatives and bleedings

Sganarelle Shut your mouth, I say What impertinence! But here they are

Lizette Look out now and you will be edified They will tell you your daughter is sick—in Latin, too

Scene 2

Sganarelle Well, gentlemen?

Dr Tomes We have examined the patient sufficiently and find much that is impure in her

Sganarelle My daughter impure, sir?

Dr T I desire to say there is much impurity and corruption in her body

Sganarelle Ah, I understand more clearly

¹ Love is the Best Physician

Dr T But we are now going to consult together

Sganarelle Lizette give the gentlemen chairs

Lizette (*to Dr Tomes*) Ah sir are you with them?

Sganarelle (*to Lizette*) Do you know this gentleman?

Lizette I saw him at your niece's house only the other day

Dr T How is her coachman?

Lizette Better off indeed. He is dead

Dr T Dead?

Lizette Yes dead

Dr T That cannot be possible

Lizette I know not whether it be possible or not but I know full well that he is dead

Dr T He cannot be dead no matter what you say

Lizette I tell you he is dead and buried

Dr T You deceive yourself Miss

Lizette I saw him die

Dr T That is impossible for Hippocrates says that kind of disease only terminates at the end of the fourteenth day or at the twenty fifth day at furthest the coachman only fell ill six days since

Lizette Hippocrates may say what he pleases but I tell you that coachman is dead

Sganarelle Peace you chatterer Let us leave these men to their consultation Gentlemen I beg you to consult very carefully in my daughter's case

Scene 4

Sganarelle Gentlemen my daughter's oppression increases I beg you to tell me quickly what course of treatment you have decided on Speak gentlemen I beseech you one after the other Let me have your opinions

Dr Tomes Sir we have consulted regarding your daughter and my notion is that her illness proceeds from great heat of the blood and hence conclude that bleeding is the proper remedy

Dr Desfontaines I hold that her malady is due to corruption of the humors caused by over repletion and hence would advise an emetic.

Dr T But I insist that an emetic would kill her

Dr D And your bleeding would likewise cause her death

Dr T And you are considered a learned man?

Dr D Yes, and much more learned than you are I could loan you brains in all matters of medical erudition

Dr T You remember that man you slew the other day?

Dr D I suppose you too can recall the woman you sent to the other world but three days since.

Dr T (*to Sganarelle*) Sir I have expressed my opinion

Dr D I have expressed my thoughts likewise

Dr T If your daughter is not bled immediately she will die

Dr D If you have her bled she will not live a quarter of an hour

Sganarelle (*aside*) Which one of these two men shall I believe and what can I do under such opposite and decided opinions? (*To the physicians*) Gentlemen I implore you to settle my mind on this difficult subject and tell me what you think the proper treatment for my daughter

Dr Macroton Sir in such matters it is absolutely necessary to proceed

with circumspection lest we make mistakes, and according to our master mind, Hippocrates, thereby engender dangerous consequences to the patient

Dr Bahis (*hastily*) It is true it is needful to be careful in all that is done This is no child's play, and when errors are committed it is not easy to repair the injury done Experimentum periculosum This is why it is well to reason first, so that we may duly consider matters such as temperament, et cetera, and examine into the causes of the affection before applying remedies

Sganarelle One of these two last speakers is a turtle, the other is a race-horse

Dr M Yes, sir, to come down to facts, your daughter has a chronic malady to which she will yield unless given relief The symptoms all indicate a fuliginous and mordicant vapor that inflames the membranes of her brain Now this vaporous exhalation is termed in Greek *at mos*, and is undoubtedly caused by putrid humors which are tenacious and conglutinous and have their origin in the lower belly

Dr B And as these humors have been engendered by a long fermentation of time, they become hardened and acquire a malignity which causes them to float upward to the brain It is necessary then to draw, detach, pull out, expel and evacuate the aforesaid humors, so that a strong purgative is required Previous to this, however, I find by experience that it is well to use anodyne remedies—that is to say, small emollient and deterusive injections, cooling syrups mixed in tisane After this we may come to emetics and bleeding, they seem to be required

Dr M 'Tis true that your daughter may die, but you will at least have the consolation of knowing that she expired according to medical rules

Dr B It is always better to die according to rule than contrary to medical ordinance

Dr M I sincerely say that is my opinion, sir

Dr B I have spoken to you as plainly as I could to my own brother

Sganarelle (*with emotion*) Gentlemen, I sincerely thank you for the pains you have taken to consult properly (*Aside*) I am more uncertain than ever The d—— but one idea possesses me I will make her take Orvietan It is a quack remedy, but Orvietan is an agent that many men have used with benefit

Lever, despite his high regard for physicians, as inimitably depicts an Irish consultation ¹ Lorrequer, in attempting to assist his friend to elope with a girl, gets into Dr Fitzgerald's carriage

Before I had time to determine upon any line of acting in this confounded dilemma, the door was jerked open by a servant in a sombre livery, who, protruding his head and shoulders into the chaise, looked at me steadily for a moment and said "Ah, then, Doctor darlin', but ve'er welcome" With the speed with which sometimes the bar of an air long since heard or the passionate glance of an old familiar face can call up the memory of our very earliest childhood bright and vivid before us, that one single phrase explained the entire mystery of my present position, and I saw in one rapid glance that I had got into the chaise intended for Dr Fitzgerald and was absolutely at that moment before the hall door of the patient My first impulse was an honest

¹ Harry Lorrequer

one to avow the mistake and retrace my steps taking my chance to settle with Curzon whose matrimonial scheme I foresaw was doomed to the untimely fate of all those I had ever been concerned in. My next thought—how seldom is the adage true which says that second thoughts are best—was upon my luckless wager, for, even supposing that Fitzgerald should follow me in the other chaise, yet as I had the start of him if I could only muster half an hour I might secure the fee and evacuate the territory besides that, there was a great chance of Fitz's having gone on my errand while I was journeying on his, in which case I should be safe from interruption. Meanwhile heaven only could tell what his interference in poor Curzon's business might not involve. These serious reflections took about ten seconds to pass through my mind as the grave-looking old servant proceeded to encumber himself with my cloak and my pistol-case, remarking as he lifted the latter. And may the Lord grant you won't want the instruments this time Doctor for they say he is better this morning. Heartily wishing amen to the benevolent prayer of the honest domestic, for more reasons than one I descended leisurely as I conjectured a doctor ought to do from the chaise and with a solemn pace and grave demeanor followed him into the house.

In the small parlor to which I was ushered sat two gentlemen somewhat advanced in years, who I rightly supposed were my medical confrères. One was a tall, pale ascetic looking man with gray hair and retreating forehead, slow in speech and lugubrious in demeanor. The other his antithesis was a short, rosy-cheeked apoplectic looking subject, with a laugh like a suffocating wheeze and a paunch like an alderman. His quick restless eyes and full nether lip denoting more of the *bon vivant* than the abstemious disciple of Æsculapius. A moment's glance satisfied me that if I had only these to deal with I was safe for I saw that they were of the stamp of country practitioners half physician half apothecary who rarely come in contact with the higher orders of their art, and then only to be dictated to obey and grumble.

"Doctor may I beg to intrude myself Mr Phipps on your notice?—Dr Phipps or Mr it's all one but I have only a license in pharmacy, though they call me doctor.

' Surgeon Riley sir, a very respectable practitioner, ' said he, waving his hand towards his rubicund confrère.

I at once expressed the great happiness it afforded me to meet such highly informed and justly celebrated gentlemen and fearing every moment the arrival of the real Simon Pure should cover me with shame and disgrace begged they would afford me as soon as possible some history of the case we were concerned for. They accordingly proceeded to expound in a species of duet some curious particulars of an old gentleman who had the evil fortune to have them for his doctors and who labored under some swelling of the neck which they differed as to the treatment of and in consequence of which the aid of a third party (myself God bless the mark!) was requested.

As I could by no means divest myself of the fear of Fitz's arrival I pleaded the multiplicity of my professional engagements as a reason for at once seeing the patient, upon which I was conducted upstairs by my two brethren and introduced into a half lighted chamber. In a large easy chair sat a florid looking old man with a face in which pain and habitual ill temper had combined to absorb every expression.

"This is the doctor of the regiment sir, that you desired to see " said my

tall coadjutor — "Oh then, very well Good morning, sir I suppose you will find out something new the matter, for them two there have been doing so every day this two months" — "I trust, sir," I replied stiffly, "that, with the assistance of my learned friends, much may be done for you Ha-hem, so this is the malady Turn your head a little so, to that side" Here an awful groan escaped the sick man, for I, it appears, had made considerable impression upon a rather delicate part, not unintentionally I must confess, for, as I remembered Hoyle's maxim at whist, "When in doubt play a trump," so I thought it might be true in physic, when posed by a difficulty to do a bold thing also "Does that hurt you, sir?" said I in a soothing and affectionate tone of voice — "Like the devil," growled the patient "Oh, oh, I can't bear it any longer" — "Oh, I perceive," said I, "the thing is just as I expected" Here I raised my eyebrows and looked indescribably wise at my confreres "No aneurism, Doctor," said the tall one — "Certainly not." — "Maybe," said the short man, "maybe it's a stay-at-home-with-us tumor after all" (so at least he appeared to pronounce a confounded technical which I afterward learned was "steatomatous") Concerning that my rosy face was disposed to jeer at me, I gave him a terrific frown and resumed "This must not be touched" — "So you won't operate upon it," said the patient — "I would not take a thousand pounds and do so," I replied "Now if you please, gentlemen," said I, making a step toward the door, as if to withdraw for consultation, upon which they accompanied me down stairs to the breakfast room As it was the only time in my life I had performed in this character, I had some doubts as to the propriety of indulging in a very hearty breakfast, not knowing if it were unprofessional to eat, but from this doubt my learned friends speedily relieved me by the entire devotion which they bestowed for about twenty minutes upon ham, rolls, eggs, and cutlets

"Well, Doctor," said the pale one, as at length he rested from his labors, "what are we to do?" — "Ah," said the other, "there's the question" — "Go on," said I, "go on as before I can't advise you better" This was a deep stroke of mine, for up to the present moment I did not know what treatment they were practicing, but it looked a shrewd thing to guess it, and it certainly was civil to approve of it — "So you think that will be best?" — "I'm certain I know nothing better," I answered — "Well, I am sure, sir, we have every reason to be gratified for the very candid manner in which you have treated us Sir, I am your most obedient servant," said the fat one — "Gentlemen, both your good healths and professional success" Here I swallowed a pony of brandy, thinking all the while there were worse things than the practice of physic "I hope you are not going," said one, as my chaise drew up at the door — "Business calls me," said I, "and I can't help it" — "Could not you manage to see our friend here again in a day or two?" said the rosy one. — "I fear it will be impossible," replied I, "besides, I have a notion he may not desire it" — "I have been commissioned to hand you this," said the tall doctor, with a half-sigh, as he put a check into my hand

Such men were natural products of diploma mills, considered an institution of to-day Diploma-selling was quite frequent in the continental European universities as late as the eighteenth century The Archbishop of Canterbury has within the last three decades more than once conferred the degree of M D for a guinea, independent of examination

The methods of diagnosis adopted by these "graduates" were often those of the modern German "water doctor,"¹ satirized by Molière in the "Flying Doctor" centuries ago

Scene 4

Gorgibus (father of Lucille) I am your most obedient servant, Doctor I come to request you to visit my daughter who is ill I put every hope in you, sir

Sganarelle Hippocrates says and Galen for the same reason concludes that no one feels well when he is sick. You are right to place your hope in me, for I am the ablest greatest, and most skillful physician there is in the vegetable, mineral, or animal Faculty

Gorgibus I am charmed with you sir

Sganarelle Do not deem me an ordinary physician sir a common practitioner I am not All other doctors are to my mind only medical abortions I have my own particular talents I have secret remedies Per omnia sæcula sæculorum

Sabina (cousin to Lucille) But sir it is not this man who is sick it is his daughter

Sganarelle That makes no difference The blood of fathers and daughters is the same thing and by the alteration of that of the father I shall know that of the child

Gorgibus (to Sabina) Go quickly and fetch some of my fair daughter's urine Ah, Doctor I fear she will die

Sganarelle I will take good medical care of her sir but she might die without a physician prescribed (Sabina returns) Ah, here it is! Really, this urine from its appearance denotes inflammation of the intestines and she must be really ill

Gorgibus (indignant) What Doctor do you taste it?

Sganarelle Be not astonished at that Ordinary physicians are content to look at the virgin fluid but I am a true doctor one outside the common horde I swallow some of this amber liquid so that by my keen taste I may discern the cause and remedy for your daughter's malady but to tell the truth her urine is too scanty in amount to pass full judgment on her case I would therefore desire more of her water

(Sabina leaves the room but presently returns with more urine)

Sabina I had great trouble making her void more water

Sganarelle What's that? Here's a scanty supply If all my patients sir passed their water in the stingy way of your daughter I should be a doctor for many years to come

Sabina (to the father) Lucille says she can pass no more urine no matter what the doctor says

Sganarelle Sir your daughter urinates only in drops She's a poor waterer certes I see I must order her a strong diuretic.

The atavistic tendency to regard science as the result of sudden discoveries leads to this apotheosis of quacks who make discoveries moss-grown with eld It robs older scientists of the credit of discovery At this last injustice Holmes cleverly hits in the case of

¹ See The Urinal of Physic.

the saw and trephine Conan Doyle, despite his deep sympathy with the profession, is guilty of it in his sketch of Dr Winter¹

Fifty years have brought him little and deprived him of less Vaccination was well within the teaching of his youth, though I think he has a secret preference for inoculation Bleeding he would practice freely but for public opinion Chloroform he regards as a dangerous innovation, and he always clicks with his tongue when it is mentioned He has even been known to say vain things about Laennec and to refer to the stethoscope as "a new-fangled French toy" He carries one in his hat, out of deference to the expectations of his patients, but he is very hard of hearing, so that it makes little difference whether he uses it or not

He reads, as a duty, his weekly medical paper, so that he has a general idea as to the advance of modern science He always persists in looking upon it as a huge and rather ludicrous experiment The germ theory of disease set him chuckling for a long time, and his favorite joke in the sick-room was to say, "Shut the door, or the germs will be getting in" As to the Darwinian theory, it struck him as being the crowning joke of the century "The children in the nursery and the ancestors in the stable," he would cry, and laugh the tears out of his eyes

He is so very much behind the day that occasionally, as things move round in their usual circle, he finds himself, to his bewilderment, in the front of the fashion Dietetic treatment, for example, had been much in vogue in his youth, and he has more practical knowledge of it than any one whom I have met Massage, too, was familiar to him when it was new to our generation He had been trained also at a time when instruments were in rudimentary state and when men learned to trust more to their own fingers

Doyle evinces newspaper egotism for the nineteenth century Two centuries ago, as Cotton Mather's book shows, the germ theory was a medical working hypothesis Early in the nineteenth century tuberculosis was esteemed so infectious that the Italian house where the poet Keats died was disinfected and quarantined by the city officials As to evolution, during the late eighteenth and early nineteenth century the vast majority of medical scientists held with Erasmus Darwin, the grandfather of Charles, whose *Zoonomia* (published in London in 1795) had reached a third American edition in 1809 Anesthesia in surgery was centuries old, Boccaccio,² not to speak of older writers, regarding it as a well known procedure, utilized it as a plot for a story

It happened that the doctor had a patient with a bad leg owing to a decayed bone, which must be taken out to cure, otherwise the patient would lose his leg or his life In every way it was a very doubtful case The friends bade him do as he thought proper The doctor, supposing that the patient would never be able to endure the pain without an opiate, deferred the operation till a certain water was distilled which, being drunk, would throw a person asleep as long as he judged proper

¹ Round the Red Lamp

² Decameron, Fourth Day, Novel 10

By the seventeenth century anesthesia was already an old procedure, fought by the church dodgers, who held with the theologians that pain was salutary to the soul Thomas Middleton¹ says

I'll imitate the pities of old surgeons

To this lost limb, who ere they show their art,
Cast one asleep then cut the diseased part

The method of inducing anesthesia varied, but by the close of the eighteenth century inhalation seems to have gained the day, for Sir Humphrey Davy points out -

As nitrous oxide in its extensive operation appears capable of destroying physical pain it may be used with advantage during surgical operations in which no great effusion of blood takes place

Faraday, in his *Journal of Science and Art* (1818), states editorially that when vapor of ether mixed with common air is inhaled it produces effects very similar to those of nitrous oxide

Dr Winter is clearly a creation of Conan Doyle's philistine notions of what constituted a physician in the early nineteenth century, rather than one of them Anesthesia, the germ theory and evolution ceased to be jesting matters to scientists ere the century began, and would not later have been regarded as ridiculously new fads

Evolution, viewed even from a sober embryological standpoint, has however the quaintly humorous aspect *Punch* seized on a quarter of a century ago when he paraphrased the "Descent of Man" thus

"Woman plainly had beards and big whiskers at first
And man supplied milk while the baby was nursed
And some other strong facts I could tell if I durst.

Spitzka² (who recognizes one humorous possibility of embryology, but does not grasp the equally tenable but more quaintly humorous potentiality suggested by *Punch*) points out that

The ovum possesses an inherent activity independently of fructification How far this may extend in the direction of more mature development is shown by what is known as parthenogenesis or virgin generation This is the development of living beings without a father Bees, some butterflies ants and wasps notoriously multiply their kind without sexual congress As a rule the parthenogenetic offspring are themselves incapable of further procreating their kind But to this there are remarkable exceptions The aphides multiply for many generations without the intervention of a male Weigenbergh has shown that the silk moth can be propagated as long as the male element is permitted to act at every fourth generation The *Artemia salina*, a minute crustacean living in saline springs, reproduces its kind for years without a male being

¹ Woman Beware Woman (1657) Act IV scene I

² Researches, Chemical and Philosophical, 1800.

³ Lectures on Embryology: *St. Louis Clinical Record* 15-5-51

present, males being produced at definite intervals only (Von Siebold) Among the vertebrata, parthenogenetic development has also been observed, though rarely reaching maturity Thus, segmentation occurs in unfertilized ova of the chicken (Oellacher), of the fish (Burnett and Agassiz), and of frogs (Moqua Tanden) I have seen a blastoderm form in unfertilized ova of the toad fish (*Batrachus tau*) Henson isolated the oviducts of a rabbit, thus rendering the admission of semen impossible, while the ova, discharged at heat, were compelled to remain in these oviducts Three years later he killed the animal and found the ova had developed into twisted, club-shaped, hollow sacs The development in the female ovary (also, though very rarely, in the *male testicle* and *parotid gland*, which show such a remarkable metastatic sympathy in epidemic parotitis) of dermoid cysts (containing bones recognizable as maxillaries with teeth, hair, and skin, rudimentary intestinal, glandular, and cerebral traces), even in undoubted virgins, proves that even the human ovum is capable of parthenogenetic development While such development, so far as known to science, is always abortive, and while, as Washington Irving remarks, the ingenious maiden who to-day would attribute conception to any other cause than sexual congress would find it difficult to overcome the prejudice of scientists, yet embryology, while declaring immaculate generation improbable, does not pronounce it impossible A worker bee is a highly organized creature with a well developed brain, wonderful sense organs, intricate muscular apparatus, yet it may be an offspring of an unimpregnated queen bee What is a regular occurrence in one class of animals is sometimes observed as an exceptional one in another class If the startling and apparently miraculous nature of a virgin generation of a living child be regarded as the sole objection to receiving such a fact, its defender might urge that the virgin generation of a dermoid cyst with all the traces, however aborted, of vertebrate organization, is only a shade less startling and miraculous

Seizing upon the potentialities hinted at in the "dermoid cysts in male testicles and parotids," the *Journal de Médecine de Paris* discovered that the "Precursor" of *Punch* is to be the "New Man"

In full health, after normal development the abdomen of a male student aged seventeen began to swell, as in the gentler sex through marital felicity or imprudence in love The man continued to swell until his condition resembled that of pregnancy Drs Madge and Sanger, of Prague, laparotomized for a tumor What was their surprise, the tumor contained an infant! Heretofore the privilege of childbearing has only belonged to women Is this a new masculine fad? Shall the world become emancipated? Is there an equality about to be established in the sexes? Shall man at last have the blessed privilege of being a mother?

This young man had not up to his seventeenth year been accused of any abnormal manifestations One day, while bathing, he bruised himself slightly on the upper portion of the belly The pain persisted, and a tumefaction was produced that increased by degree Two years later this enlargement had acquired the size of an infant's head An operation was deemed necessary and was performed, but not without difficulties When the fact was reported to the Sultan of Turkey, he was not surprised If this does not surprise a Turk, it appears certainly to be abnormal in Hungarian students

The *Journal* admits that it is puzzled as to etiology, although its own columns furnish suggestive facts. In 1893 it reported a case where fatal laparotomy was done for removal of a lithopedion in a man. A lady discussing the case remarked "So queer thing in a young man." "Yes," replied her friend, in a puzzled tone, "especially in a bachelor."

Of this last possible etiology Boccaccio seems the prior discoverer. Calandrino by the tricks of two wags aided by Dr Simon, is frightened into illness. He sends his water to Dr Simon. After the usual researches into pulse etc., Dr Simon remarks, "Your illness is due to your being with child," whereupon the sick man roars to his wife "Oh Tessa this is all your doing. How shall I be delivered? If I ever get well, you shall never get the upper hand of me again, beg as hard as you will."

Another etiological suggestion in the *Journal* columns (such is French fertility in data for bizarre theories) comes from the malpractice suit for too great success in sterility. A pious inhabitant of Cannes devised a Mystical Water of the Holy Mountain Fathers. This enjoyed a reputation for the cure of diseases equal to the water of Lourdes and in sterility was as much renowned as "holy vinegar." The deviser had won newspaper fame almost equal to that of Pasteur, when he had the misfortune to encounter a female desirous of maternity, who had been twelve years married but was sterile, although "the fragments of her hymen were burnished by constant efforts." The mystical water was given, a child was born, then a second, then a third, in rapid annual succession. Disgusted with the good measure, the woman cited the pious vender of the mystical water before a local tribunal, for malpractice, making the following complaint: "After twelve years of marriage I was childless. I then consulted Mr B—— who ordered me a water which, he claimed, contained the germs of universal fertility. I drank the water, and was delighted to find myself pregnant at the end of two months. My husband was delighted. The tide turned. I soon after had a second child, and then a third, whereupon I went to Mr B—— and begged that he stop the effect of his remedy. He replied that he couldn't, and that I would have twelve children. I have therefore the right to complain. He gave too strong a dose."

To the source of these "germs of universal fertility" the *Journal* has not given a clue. An Arkansas Eclectic nearly a decade ago, probably gave the Frenchman a hint. Dr F. M. Baker, of Martinsville,¹ found that when he first began practice every female

¹ *American Medical Journal*, June 1888.

seemed to need *cimicifuga* and *pulsatilla*. Every female to whom he gave these remedies had a child within a year. Some of them were misses, suspicious characters who had evidently been gratifying their passions for some time. He admits that it is probable that *pulsatilla* will not cause conception without coition, but is sure that it exerts a wonderful influence on those who are cohabiting. He warns the ladies who are cohabiting and desire to keep it to themselves, to beware of *pulsatilla*.

Remedies devised in the infancy of medicine oft return to plague the physician. It was a principle of folk-lore therapy that the aged could restore their youth by sleeping with the young, who, however, thereby lost their vigor. This treatment was applied to David in his old age by Abishag. The popular notion as to the efficacy of this practice now frequently finds vent in a salutary objection to the aged and young occupying the same bed. According to the Marshal Castellane, this notion was at one time a fashionable fad.

Marchioness Talarn, who is over fifty, believes it absolutely necessary for her health that she should have a man beside her at night. Whenever M. de Talarn is absent she makes her people sew up one of his relatives or friends in a sack, and has him put into bed. In the morning she is careful to summon her attendants, or, at all events, the chambermaid, in order that they may testify that the sack has not been unsewn. When both friends and relatives happen to be away, the physician of the Neris hydropathic establishment occupies the post of honor.

Popular belief in the occult properties of medicine still survives in Christian Science, Hahnemannia, and Physio-medicalism. This belief, that of the omniscient occult quack (represented now by the man who is a "specialist in every ailment human flesh is heir to"), has been scarified since the dawn of history by popular anecdotes.¹

At Florence, a man full of assurance and audacity had no manner of occupation. The fellow read in a medical book of certain pills reputed to be a sovereign remedy against different diseases, he became a doctor, thanks to these pills. After manufacturing a great number, he left Florence and went around in its neighborhood among villages and farms practicing physic. He administered his pills indifferently in all kinds of maladies, and luck seemed to aid him, for several patients recovered after taking his drugs. The renown of this *ignoramus* soon spread among the common people so that a peasant who had lost a donkey came one day and demanded the quack remedy to find missing asses. The empiric gave him six pills to swallow. The patient paid his fee and departed. During the next day, while seeking for his beast, the cathartic pills took effect and the peasant precipitately retired into a willow copse, where, to his astonishment, he found his ass grazing. From that time he

¹ Jeafferson, *op cit*

lauded to high heaven the science and pills of the quack. A true Æsculapius had been found! The rurals rushed from all over the adjoining country they came in crowds to the doctor who had remedies that even found a lost ass

The apothecary was most given to these quackish procedures, but the intimate commercial relations between physicians and apothecaries were strongly believed in at the time of Chaucer, according to the physician in the *Canterbury Tales*

Full ready had he apotecaries
To send him drugs and lectuaries
Each made the other to win
Their friendship was not new to begin

Whether illegible prescription and expert decipherment were as well known then as now is an open question but at present they furnish plots to comedies which Molière might envy, as, for example, that cited by Nordau¹

In an exceedingly amusing French farce 'Le Homard' a husband suddenly returning home one evening surprises a stranger with his wife. The latter does not lose her presence of mind and says to the husband that, having suddenly been seized with illness she had sent her maid for the first available doctor and that this gentleman was the doctor. The husband thanks the gallant for his speedy appearance, and asks if he has already prescribed anything. The gallant—who, of course, is not a doctor—tries to make himself scarce but the anxious husband insists on having a prescription so that Galen bathed in cold perspiration, is compelled to give one. The husband casts a glance at it, it consists of wholly illegible marks. 'And will the druggist be able to read that?' asks the husband shaking his head. — As if it were print, asseverates the false physician again trying to make his escape. The husband however adjures him to remain, and holds him fast until the maid returns from the druggist. In a few minutes she makes her appearance. The Galen prepares himself for a catastrophe. No! the maid brings a vial of medicine, a box of pills and some powders. 'Did the druggist give you these?' demands the Galen in bewilderment. — Certainly. — 'On my prescription?' — Of course it was on your prescription replies the astonished maid. — Has the druggist made some mistake? interposes the anxious husband. — 'No no our Galen hastens to reply, but he contemplates the medicine for a long time, lost in reverie

Medical advance has been the product of that silent evolution depicted by Shelley

Thought by thought is piled
Till some great truth is loosened
And the nations echo round

That potent factor of much advance Vivisection (which has freed medicine from occultism and drugging), has received some

¹ Degeneration

hard raps in fiction, but for delicate good-humored satire none equals the slap the elder Dumas¹ contrived at once to give vivisection, Claude Bernard, and the French Academy

"And who can that person be who has taken it into his head to wrap himself up in a blue coat embroidered with green?"—"Oh, that coat is not his own idea, it is the Republic's, which deputed David to draw a uniform for the Academicians"—"Indeed!" said Monte Cristo, "so this gentleman is an Academician?"—"Within the last week he has been made one of the learned assembly"—"And what is his especial talent?"—"His talent? I believe he thrusts pins through the heads of rabbits, makes fowls eat madder, and keeps back the spinal marrow of dogs with whalebone"—"And he is made a member of the Academy of Science for this?"—"No, of the French Academy"—"But what has the French Academy to do with all this?"—"I was going to tell you. It seems that his experiments have very considerably advanced the cause of science. No one denies that his style of writing is very good"—"This must be very flattering to the feelings of the rabbits into whose heads he has thrust pins, to the fowls whose bones he has dyed red, and to the dogs whose spinal marrow he has repelled."

The choicest evolution of the society church-dodger is the medical director of insurance companies, appointed for "business" reasons. In our irreverent century, not even this most holy of holies escapes "the fierce light which beats upon the throne," as witness the Anglo-Bengalee dinner.²

The lunch was handsomely served, with a profusion of rich glass plate and china, which seemed to denote that eating and drinking on a showy scale formed no unimportant item in the business of the Anglo-Bengalee Directorship. As it progressed, the Medical Officer grew more and more joyous and red-faced, insomuch that every mouthful he ate and every drop of wine he swallowed seemed to impart new lustre to his eyes and to light up new sparks in his nose and forehead.

In certain quarters of the city and its neighborhood Mr Jobling was a very popular character. He had a portentously sagacious chin and a pompous voice, with a rich huskiness in some of its tones that went directly to the heart like a ray of light shining through the ruddy medium of choice old burgundy. His neckerchief and shirt-frill were ever of the whitest, his clothes of the blackest and sleekest, his gold watch-chain of the heaviest, and his seals of the largest. His boots, which were always of the brightest, creaked as he walked. Perhaps he could shake his head, rub his hands, or warm himself before a fire, better than any man alive, and he had a peculiar way of smacking his lips and saying "Ah!" at intervals, while patients detailed their symptoms, which inspired great confidence. It seemed to express "I know what you're going to say better than you do, but go on, go on." As he talked on all occasions, whether he had anything to say or not, it was unanimously observed of him that he was full of anecdote, and his experience and profit from it were considered for the same reason to be something much too extensive for description. His female

¹ Monte Cristo

² Martin Chuzzlewit.

patients could never praise him too highly and the coldest of his male admirers would always say thus for him to their friends that whatever Jobling's professional skill might be—and he had a high reputation—he was one of the most comfortable fellows you ever saw in your life.

Jobling was for many reasons—and not last in the list because his connection lay principally among tradesmen and their families—exactly the sort of person whom the Anglo-Bengalee Company wanted for a medical officer. But Jobling was far too knowing to connect himself with the company in any closer ties than as a paid (and well paid) functionary or to allow his connection to be misunderstood abroad if he could help it. Hence he always stated the case to an inquiring patient after this manner:

"Why, my dear sir, with regard to the Anglo-Bengalee my information, you see is limited—very limited. I am the medical officer in consideration of a certain monthly payment. The laborer is worthy of his hire *bis dat qui cito dat* (classical scholar Jobling thinks the patient well read man) and I receive regularly. Therefore I am bound so far as my own knowledge goes, to speak well of the establishment. (Nothing can be fairer than Jobling's conduct thinks the patient who has just paid Jobling's bill himself.) If you put any question to me, my dear friend," says the Doctor, "touching the responsibility or capital of the company, there I am at fault for I have no head for figures, and not being a shareholder am delicate of showing any curiosity whatever on the subject. Delicacy—your amiable lady will agree with me, I am sure—should be one of the first characteristics of a medical man. (Nothing can be finer or more gentlemanly than Jobling's feelings thinks the patient.) Very good my dear sir, so the matter stands. You don't know Mr. Montague. I'm sorry for it. A remarkably handsome man and quite the gentleman in every respect. Property, I am told in India House and everything belonging to him beautiful. Costly furniture on the most elegant and lavish scale. And pictures which even from an anatomical point of view are perfection. In case you should ever think of doing anything with the company I'll pass you—you may depend upon it. I can conscientiously report you a healthy subject. If I understand any man's constitution it is yours. And this little indisposition has done him more good ma'am," says the Doctor, turning to the patient's wife, "than if he had swallowed the contents of half the nonsensical bottles in my surgery. For they are nonsense to tell the honest truth, one half of them are nonsense compared with such a constitution as his. (Jobling is the most friendly creature I ever met with in my life thinks the patient and upon my word and honor I will consider of it.)

"Commission to you, Doctor, on four new policies and a loan this morning, eh?" said Crimple looking when they had finished lunch over some papers brought in by the porter. "Well done."

"Jobling, my dear friend," said Tigg, "long life to you!"

"No no, nonsense! Upon my word I've no right to draw the commission," said the Doctor. "I haven't really. It's picking your pocket. I don't recommend anybody here. I only say what I know. My patients ask me what I know and I tell 'em what I know. Nothing else. Caution is my weak side—that's the truth—and always was from a boy. That is," said the Doctor, filling his glass, "caution in behalf of other people. Whether I would repose confidence in this company myself if I had not been paying money elsewhere for many years—that's quite another question."

kidneys to excrete the necessary urinary salts, every symptom of uremic poisoning followed from their retention, but it happened that the kidneys themselves were not irritated—they simply ceased work from want of water. She had no albuminuria, but nevertheless died of uremic poisoning.

The problem in every case of valvular heart disease is not settled when we have decided that this valve or that is obstructed or defective. That is a trifle. The real problem is: How has the heart accommodated itself to the defect, in short, how well can the heart pump? The problem in every case of Bright's disease is not whether albumin is present or not, but how well can the kidneys keep the blood free from accumulation of urinary poisons?

It is a common remark, when two physicians are discussing a case of nephritis, to hear, "There is only a trace of albumin," or, "The albumin is abundant." These are good things to know, but it is a good deal better to know what is the total amount of urine excreted every twenty-four hours and what is the average specific gravity.

By the way, this matter of specific gravity deserves a word. Life-insurance examinations all require a statement of the specific gravity of the specimen of urine examined. Such a statement is of practically no value, simply for the reason that the specific gravity of the urine of every individual varies widely every day. I have repeatedly found, in the same individual, a variation from 1.014 to 1.036 in a single twenty-four hours. The specific gravity of any one specimen tells nothing. It is only by obtaining the specific gravity of the collected urine of twenty-four hours that we can form a fair idea of the actual excretion of the kidneys.

In actual practice, were I to be limited to only one way of telling how my case of Bright's disease was getting on, I would be better informed and my patient would be safer if I knew from day to day the total amount of urine excreted, and its specific gravity, and never made a test for albumin, than if I watched the albumin from day to day and failed to know accurately the quantity or specific gravity of the urine. Quantity and specific gravity together would tell me how my patient was. Albumin might tell me the condition of the kidneys or a part of one kidney. The condition of my patient is the vital question. The condition of a little patch of one kidney may be of trifling importance. And it needs only a localized defect in one kidney to keep up a very persistent albuminuria.

I know a well known physician in the State who has had albu-

minuria, with pus formation, for some eighteen years, but who long ago ceased to worry over his albuminuria, for he has worked hard and steadily and enjoyed health much above the average. When he dies (if that happens to be before I do, which seems quite unlikely) I should like to hunt up the little hardened scar on one kidney and see the thing which worried us both when we were young and timorous doctors together.

While I thus emphasize the value of careful study of other signs, I do not wish to seem to undervalue the significance of the presence of albumin. A physician who overlooked a valvular defect or who misinterpreted the character of the defect would be a very unsafe medical adviser. As far as the life of the patient is concerned, it is a question how can the heart pump, but the medical man who fails to accurately judge of the nature of the valvular trouble and the state of the heart and blood-vessels can very materially lessen the ability of the heart to keep on pumping. So in a case of Bright's disease. The early recognition of albuminuria is an invaluable guide to the physician. A failure to recognize the presence of albumin may be even more disastrous than a failure to recognize a valvular defect—more disastrous because cardiac defects are much more likely to cause symptoms which warn the patient than are renal defects. The renal difficulty may have progressed to a dangerous point before the patient suspects any kidney trouble, indeed, he may never suspect it at all.

The matter of testing for albumin is so simple that I cannot comprehend why physicians do not make the analysis as a routine in every case.

I presume the case must be a rare one in which a physician examining a patient for the first time fails to ask the patient to put out the tongue, or fails to count the pulse. What a trivial piece of information the appearance of the tongue gives, compared with the results of testing the urine! What is the pulse rate varying with every emotion, a little haste, a recent full meal compared with the white line of albumin? The presence of that white line is vital, the coated tongue or the quick pulse is of varying significance. The surgeon who fails to be assured about that white line before operating may vitiate the result of the most carefully planned and skillfully executed operation. The surgeon who neglects to make a urinalysis before every operation adds an unnecessary danger to the patient's life and his own reputation. But a physician who undertakes a new case and similarly neglects urinalysis does precisely the same thing.

One thing as to the testing for albumin, experience has shown to be useful. It is this: the attempt to *pour* urine into a test tube in such a way as to form a distinct layer upon the cold nitric acid is usually a failure. It is true that when a large percentage of albumin is present a mingling of urine with the acid does not vitiate the test. When small in amount, however, the albumin will not be discovered.

I told an applicant for insurance that he was not insurable, as he had albuminuria, and referred him to his own physician. Shortly after he returned with the somewhat indignant statement that his physician told him he had no albuminuria. Thereupon we marched back to his physician. A little cold nitric acid, a pipette and a little fresh urine showed a fine, clear-cut white line. *Poured* into the test tube, the nitric acid had redissolved the albumin, carefully put on top of the nitric acid in a slow stream from the fine point of the glass tube, there could be no mistake. The doctor's only remark was "Well, I never did it that way before." The *way* is everything.

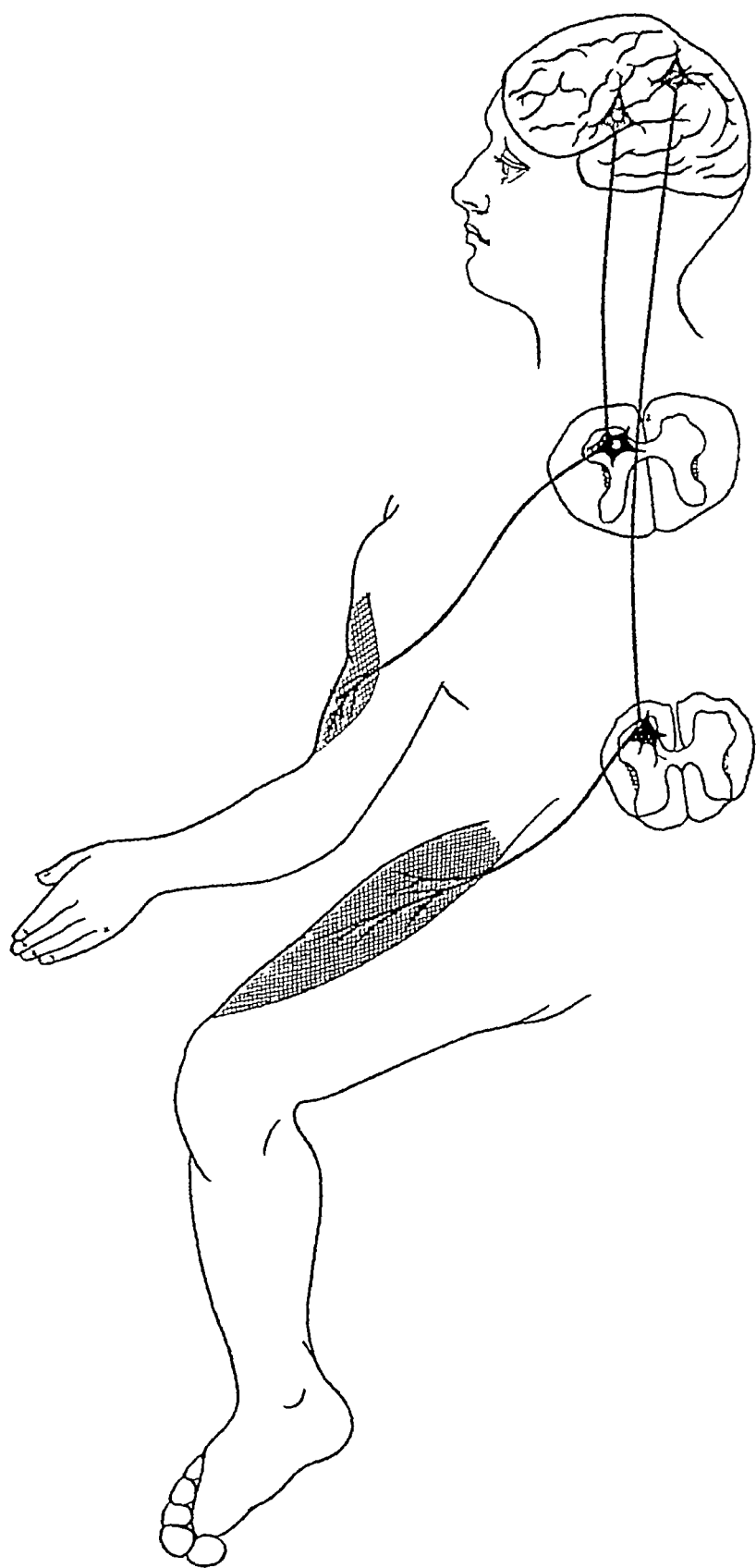
One thing more. Albumin only precipitates on boiling from urine which is *nearly neutral*. Strongly acid or strongly alkaline urine may contain a large amount of albumin and yet remain clear and pellucid on boiling.

Take urine which is known to contain abundant albumin, add to a drachm of it one drop of nitric acid, three drops of strong acetic or citric or hydrochloric acid, and on boiling there will be no reaction, further, the addition of liquor potassæ will similarly prevent coagulation.

I am satisfied that many a gouty patient has been pronounced free from renal affection because his highly acid urine remained clear on boiling, while his kidneys have been shrinking and growing less and less competent. The neutralization of the acidity would prevent such an error.

I have presented these minor points not because of their novelty, but simply as a contribution to an exchange of personal experience and practical suggestion.





ELECTRO-DIAGNOSIS AND ELECTRO-THERAPEUTICS SIMPLIFIED ¹

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Electro-diagnosis in nervous diseases is limited to the affirmation or denial of a lesion of the lowest neuron—that is, so far as the extremities are concerned, a lesion involving the cells of the anterior horns of the spinal cord, or their prolongations which constitute the peripheral nerves. A lesion of any character that affects the integrity of these cells or the fibres of which they are the trophic centres causes a degeneration of the fibres below the lesion and of the muscles supplied by them—a degeneration that is discoverable by electricity. An approximate determination of the degree of such lesion may also be made by electric examination. On the other hand, a lesion above any given level of the cord causes no marked change in the nerves or muscles supplied from such level, and consequently no appreciable change in the electric reaction. The character of the lesion is a matter of indifference as is also its location, as long as it is above the level in question—it may be in the spinal cord, medulla oblongata, pons, crus cerebri, internal capsule, or cerebral cortex and no matter how complete or incomplete the consequent paralysis may be, the foregoing rule holds good. In any case of paralysis, then be it one of hemiplegia, paraplegia or monoplegia, if we find reaction of degeneration, we know that the lesion is of some part of the motor tract indicated in the figure (see opposite page) by red, if there be no material change in the electric reactions, we know that it must be located somewhere in that part of the tract indicated in the figure by green.

What is reaction of degeneration, and how may it be recognized? In the first place, we may neglect all statements as to the direction of the current. In the next place, we may forget all differences between direct excitation (that is, stimulation by application of the electrode to the muscle itself) and indirect excitation (that is stimulation by application of the electrode to the nerve-trunk at a distance from the muscle). The former alone is necessary. Lastly, we need commit to memory no details as to polar action—no confusing formulæ regarding C C C (cathodal closure contraction), A O C (anodal opening contraction), etc.

¹ Read at the twenty-second annual meeting of the Mississippi Valley Medical Association

They are not only unnecessary, but are unreliable guides as well. As a matter of fact, although most normal muscle responds better to the negative pole (C C C) and most badly degenerated muscle to the positive pole (A C C), there are many exceptions to both physiological and pathological law. We have but two facts to remember. First, in reaction of degeneration, contraction to the faradic current is greatly diminished or lost, to this there is a possible exception in that, if the lesion be very slight or transient, the diminution in faradic excitability may be so slight as to be inappreciable. Second, the contraction to the galvanic current is *slow*. The normal response is by a quick contraction or jerk.¹ The deliberate contraction of degenerated muscle to galvanic stimulation has been called "vermicular" and likened to the normal contraction of unstriated muscle. It is not to be inferred that it is as slow as intestinal peristalsis, but it is so distinctly slower than the "lightning-like" flash of contraction produced in healthy muscle as to be unmistakable, having been once seen.

Before passing to a brief consideration of the essentials of electro-therapeutics, I should like to say with all possible emphasis, what should never need emphasis, that an adequate diagnosis must always precede treatment. The physician who wants to know the electric treatment of "paralysis," "sclerosis," or "neuroses," has no moral right to possess a battery.

Electro-therapeutics of Organic Nervous Diseases—There is no organic disease of the brain in which electricity will accomplish anything when applied to the head. I am well aware that this statement would be disputed by some few observers. It may be dogmatically asserted, nevertheless.

In paralysis from cerebral hemorrhage or softening, something may often be accomplished by systematically exercising the paralyzed muscles with electricity. No case is ever cured in this way, and in bad cases the contracture and rigidity cannot be prevented, but the muscles may be made to keep pace with the repair of the nervous tissues. Either current may be used. The faradic is as good as the galvanic. The anesthesia of cerebral palsy may ordinarily be neglected, but the pains and paresthesiæ in the paralyzed or paretic members may be exceedingly distressing. These are very generally relieved by the faradic current. It must be added, however, that the relief is rarely more than temporary.

¹ To get a response to the galvanic current, it is, of course, necessary to "make" and "break" the current. This is accomplished by suddenly touching the surface with the electrode, or, preferably, using an interrupting electrode handle. There is no contraction during the continued passage of the current.

Ocular paralyses are scarcely amenable to electric treatment

In bulbar (glosso-labio-laryngeal) paralysis, considerable amelioration may be attained by stroking the electrode downward from the lobe of the ear, in front of the sterno-mastoid muscle, passing a little forward at the angle of the jaw, so as to cause movements of deglutition. If a treatment be given immediately before eating, this procedure, often very difficult and even dangerous, may be materially facilitated. As the desired contraction is ordinarily better obtained by the galvanic current, that is the one to be chosen

No disease of the spinal cord was ever cured by electricity. There is no acute disease of the spinal cord or its membranes in which the use of electricity is indicated. This does not apply to the *results* of acute disease

In acute anterior poliomyelitis (infantile paralysis), after the acute stage, notably in old and neglected cases, something may be accomplished by electric treatment. This is not because the current causes regeneration of nerve-fibres much less of nerve cells, but because we may by this means develop to the utmost every muscle-fibre capable of contraction. In other words the treatment is muscular, not neural. Hence the current must be strong enough to cause muscular contractions, and as this is better accomplished by the galvanic current, that is the one to be used. On the same principle, that pole is chosen which the better causes contraction. It is stroked over the affected parts or is held at different points while the current is interrupted. It must not be forgotten that sometimes parietic muscles respond to the stimulus of voluntary impulse better than to that of electricity, and in such cases systematic exercise by voluntary motion is more important than electric treatment. Both should be used. The treatment of muscles paralyzed by a cord lesion above the level from which they receive their nerve-supply is exactly the same as in the case of a brain lesion, and the prospects of material benefit are as poor.

In multiple sclerosis, syringomyelia, progressive muscular atrophy (or dystrophy), lateral sclerosis, and spinal meningitis, but little is to be expected from electrotherapeutics. In locomotor ataxia the anesthesia (and consequently the symptoms dependent on it) may at times be materially affected by the faradic or galvanic brush. The current must be strong. In a certain proportion of cases the impotence of this disease is, according to my observation, accompanied by decided anesthesia of the penis, and if this anesthesia can be removed, in part or entirely, the impotence will be correspondingly improved. I am convinced that the other symp-

toms of tabes are sometimes benefited by a strong galvanic current. The feet are placed on an electrode large enough to cover the soles of both, or the patient sits on it, and the other electrode, also quite large, is applied over the cervical or dorsal spine, and a current of 150 milliampères is passed for five or ten minutes. Interruptions or reversals of a less powerful current (50 milliampères) are then employed without removing the electrodes. The higher the spinal electrode is placed, the weaker must be the current for the reversals or interruptions, as they occasion a distressing spasmodic cough.

In peripheral neuritis, including ordinary facial paralysis, and injuries of peripheral nerves, electricity is believed by most authorities to materially hasten recovery. The justice of this belief would seem to be amply shown by clinical experience, but it must not be forgotten that it has never been proven, that is, it has never been demonstrated experimentally that electricity can hasten by a single hour the regeneration of a nerve-fibre.

In peripheral cases, that current is to be chosen which produces good muscular contractions. If either current will do this, the choice is a matter of indifference. If only the galvanic can produce response, the more active pole is to be chosen, and the parts are stroked, or the pole is placed over the different affected muscles and the current interrupted.

Functional Diseases of the Nervous System—The electrotherapeutics of functional nervous disease is rather more satisfactory than the like treatment of organic affections, but it is impossible to know what proportion of the gratifying result is due to mental impression—to suggestion. That psychic processes play a very important rôle in many functional nervous troubles, is undoubted.

Electricity is of no avail in migraine—periodic sick headache.

In tri-facial neuralgia, mild galvanism (5 to 10 milliampères) with the anode (positive pole) over the most tender point, or nerve-trunk, will sometimes quiet the pain in a wonderful way. Such cases are exceptional. The relief is ordinarily only moderate and of short duration, sometimes it is *nil*. If the electrode be moistened with a 10-per-cent solution of cocaine, or a disk of blotting paper wet in the solution be placed between electrode and skin, the relief is surer and prompter, but it is, as a rule, only transitory.

Intercostal neuralgia, as well as the ill-defined "side-ache" and submammary pain of women, will generally yield for a greater or less length of time to repeated applications of faradism. The current should be strong, the interruptions rapid. Occasionally, the galvanic current stable (that is, the electrode stationary and no

interruptions of the current) and of moderate strength is more efficacious. Failure to give considerable relief by one or the other of these methods is the exception.

Electricity is among the best remedies for sciatica, and the more purely neuralgic—as distinguished from neuritic—it is, the more valuable is electric treatment. The galvanic current is the better. A large electrode—not less than 24 square inches—is placed over the lumbar or sacral spine, and another, the anode, almost as large, held over the course of the nerve at different points. The current is to be strong (100 to 150 milhampères), and the application stable.

The faradic current stable, strong and of rapid interruptions, is the more frequently useful in lumbago. Sometimes the result seems magical. In exceptional cases the stable galvanic current is to be preferred.

The peculiar headache and cephalic paresthesiæ of neurasthenics and nervous people are sometimes markedly improved by a mild galvanic current through the head. In most of these cases the psychic element in the treatment is important, and just how and how much the current acts on the cerebral tissue itself is unknown. Electricity deserves a subordinate position in the treatment of neurasthenia.

In hysteria the action of electricity *per se* is nil. It is, however, a powerful aid in the treatment of the "great neurosis." The faradic current is nearly always preferable,¹ and it must be strong in hysterical anesthesia, strong enough to be painful, in hysterical pain strong enough to constitute a counterpain, in hysterical paralysis strong enough to cause vigorous contractions. I might add that too much should not be attempted at one sitting. The picturesque effect of a positive statement, a violent "shock" and a sudden recovery, is very alluring, but seldom attained. Failure in such an attempt means at least temporary defeat. A much more rational and successful plan is to aim at systematic, gradual, and steady improvement.

There seems to be no doubt about the benefit of galvanism in exophthalmic goitre—a mild current, with one electrode on either side of the front part of the neck. Whether this means galvanization of the thyroid gland, of the cervical sympathetic, of the pneumogastric nerves, or of something to be discovered by our successors, I shall not venture to guess.

¹ Static electricity is not considered in this paper as the general practitioner for whom it was written seldom has the necessary apparatus.

Paralysis agitans, senile and essential tremor, facial spasm, tic, spasmodic torticollis, blepharo-spasm, athetosis, writer's cramp, and other occupation neuroses, are unaffected by electric treatment, except through its mental effect. Epilepsy, tetanus and tetany are uninfluenced by electricity. Galvanization of the spine has been said by a number of observers to have a favorable influence on the course of ordinary chorea, but I doubt it.

Electricity is a very useful adjunct to the "rest cure" of "nervous exhaustion," invalidism, mild psychoses, and allied states, as it enables us to give the patient the benefits of muscular exercise without calling upon his vitality for the necessary exertion. The entire body is to be gone over with the faradic or galvanic electrode, the current being of sufficient strength to produce distinct muscular contractions. An electrode in the form of a roller is convenient for this purpose, but stroking with an ordinary sponge electrode may take its place and is equally effective.

SUBMUCOUS LINEAR CAUTERIZATION—A NEW METHOD FOR REDUCTION OF HYPERTROPHIES OF THE CONCHÆ

By NORVAL H. PIERCE, M.D.

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Michael Reese Hospital, in the Department for Diseases of the Nose,
Throat and Ear, Laryngologist to the Passavant Memorial
(Emergency) Hospital, etc.

In reviewing my own work of the past ten years, I am particularly struck by the marked diminution in the number of instances in which the electric cautery has been employed in the treatment of nasal disease. Year by year this curtailment has been increasingly marked, during the last eighteen months, only four cases are recorded in which the electric cautery was used in the nasal chambers. The reason for this is threefold: first, a growing appreciation of the vast difference between turgescence of the turbinated bodies and true hypertrophy; second, the fact that in the former condition the large majority of cases are far more satisfactorily treated by measures other than cauterization; and third, the substitution of the method of cauterization devised by the writer for electric cauterization.

My experience with electrical apparatus may have been unusually unfortunate, but it has led many times to the most profound disgust. If I have winced at the primary cost of such a plant, I have moaned aloud in despair at the cost and worry of its maintenance. Had Aristotle lived to day, he would have added electrical batteries to "the wind, the plighted faith of woman, and the sunshine of an April day," as objects for a wise man's distrust. In the time of greatest need, these costly electrical appliances have proven a disappointment, so that I have been led to regard my row of squat Pumpells, in the words of Scotia's dearest bard, as

unco weak
And little to be trusted'

Therefore I essayed to devise some other method, less costly, more dependable, and equally or more efficacious.

Chronic and glacial acetic acid applied to the surface of the conchæ have been found unsatisfactory in dealing with both soft and true hard hypertrophies. In dealing with soft hypertrophies, only a limited quantity of the escharotic can be employed each time, in order to avoid violent reaction, so that the applications have to be repeated a number of times, with intervals of variable duration between, which makes the method tedious, and the ultimate results

are by no means certain. As a means of treatment of true hard hypertrophies, I do not hesitate to characterize this method as worthless. There are places, however, where it is applicable—*e g*, the sensitive area at the posterior portion of the septum, the natural relation of the parts here (a thin membrane on bony base) renders only a most superficial cauterization necessary.

The instruments required are a small knife, an instrument which I call a blunt submucous dissector, and a cup-headed applicator for carrying fused chromic acid. The knife resembles a large myringotome. The other two instruments are made from No 18 silver wire, tempered to give sufficient resistance. Each instrument is mounted on a metal bayonet-handle with an angle in the shank, as suggested by Williams, of St Paul, for ear instruments. By this device we are able to keep the hand out of view of the field of operation.

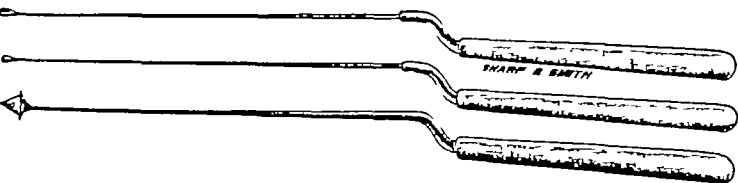
The technique of operating is as follows.

I The parts are thoroughly cocaineized. For this purpose, I find a 4-per-cent solution of cocaine which contains 1 per cent of antipyrin, applied by means of a pledget of cotton on an applicator, most satisfactory. Before using, the pledget of cotton containing the solution is held over a flame until it feels quite hot when applied to the back of the hand. Anesthesia produced in this way occurs much more quickly, is more profound, and lasts longer.

II After anesthesia is complete, an incision is made in the anterior head of the turbinated body, about a quarter of an inch from the muco-cutaneous junction, the knife being carried nearly parallel to its surface until the guard is reached. I have made this first incision by ignipuncture, but find it less satisfactory than the cold incision. After the slight hemorrhage has ceased, we proceed to the next step.

III The blunt dissector is introduced into the incision, and gradually insinuated, with as little up-and-down or lateral motion as possible, beneath the mucous membrane, *i e* in the submucous connective tissue. This may be continued to as great a distance as necessary. We may continue it along the entire length of the turbinate body, until we feel the resistance of the head of the dissector against the mucous membrane as it dips down to form the posterior head. Care should be taken not to break through the mucous membrane at any part of the course. Perhaps a few drops of blood will escape from the anterior incision during or immediately after this stage of the operation, but hemorrhage is always insignificant. After this ceases, the last stage of the operation is begun.

IV We insinuate into the anterior incision, quickly and dexterously, the head of the cup-probe in the cup of which is fused chromic acid. This is caused to slowly follow the track made by the dissector. It is then withdrawn the nose is syringed or sprayed out through the opposite nostril with an alkaline solution, and the operation is complete.



The simplicity of this method does not detract from its great worth. The cost of the implements, as compared with the cost of the electrical cautery, is a mere trifle.

The apprehension of the patient is much less than in electrical cauterization. I have yet to meet with a refusal on the part of a patient to undergo this operation while it has been no uncommon occurrence for patients to refuse to submit to the actual cautery.

The operation is painless. This can hardly be said of electrical cauterization when any considerable area is destroyed. This is especially true as regards the posterior nasal regions.

The reaction in the majority of cases is insignificant, or absent altogether. In only one instance have I seen a reaction which could be compared to that set up by the electrical cautery, and in this case there was an enormous hard hypertrophy and I, fearful of an insufficient result, made two applications of the chromic acid at one sitting. In the majority of cases the patients say they are free from the inconveniences due to the operation (swelling, hypersecretion, etc.) on the day following.

This operation is more rational than the electrical cauterization. We must remember that in the use of the cautery we burn from without inward—that in thus penetrating the conchæ there is a greater destruction of the surface than of the parts beneath—and this is exactly reversing the desired object, for it is not by destroying a functioning membrane which is of the greatest importance to the entire economy that we gain the good effects of cauterization. The process by which a hypertrophied concha is reduced takes place in the submucous connective tissue. By cauterization we set up the formation of scar tissue, which following a law that presides

over it in all places, contracts, and thus the volume of the turbinated body is decreased. By the method which I have described the surface of the mucous membrane is left intact—the cauterization is carried immediately to the elements concerned in bringing about the result desired. This I regard as of such importance as to confer upon the method the dignity of a distinct advance in rhinology.

Another point in favor of the method is that it obviates the danger of atresia. I have operated on cases where the nares were so extremely narrow that even after cocaineization the conchæ remained almost in contact with the septum, but, no ulceration occurring, no atresia could take place.

It may be readily appreciated that the application of this method to the middle turbinated bodies is very limited. I have, however, successfully applied it in cases of lymphoid hypertrophy of the septum and floor of the nose, and look for its wider application in the future.

I have lately examined patients who were operated on by this method a year ago, and found them as free from objective and subjective symptoms as they were a month after being operated upon.

To recapitulate I desire to claim as advantages for this method of operating

- 1 The cheapness of its armamentarium
- 2 Its reliability. The instruments employed are always in order and are easily transportable
- 3 Its simplicity and ease of performance
- 4 It is greatly less terrifying to the patient than is electrical cauterization
- 5 It is painless under cocaine
- 6 Its efficacy. The scar tissue produced by this method is as great, if not greater than that produced by electrical cauterization. The hypertrophies not having begun to recur after a year's time, in the cases examined, its effects may be regarded as permanent
- 7 It does not destroy the mucous coverings
- 8 The reaction is very slight, much less than that following the use of the electric cautery

In presenting this method to his colleagues, the writer is assured that its efficacy and practicability are fully established, it having been employed for over a year in his public clinics and private practice, and he regards it as distinctly superior to the measures heretofore employed for the purpose of reducing hypertrophied conchæ.

THE TREATMENT OF DELIRIUM TREMENS BY CHLORIDE OF AMMONIUM

BY GILBERT G. COTTAM M.D. ROCK RAPIDS, IOWA.

It is an almost universal experience that the accepted routine treatment of delirium tremens is unsatisfactory when applied at the bedside. In part this is due to the effect of alcohol itself, and perhaps more largely to the fact that inebriates habitually indulge largely in morphine, chloral, bromide, etc. In this way a tolerance for sedatives and hypnotics is established which renders these agents quite inoperative when exhibited for the purpose of subduing the delirium.

In 1893, during my hospital internship, I had abundant opportunity of demonstrating the truth of the foregoing proposition. While casting about for a substitute my attention was drawn to the chloride of ammonium, which, in moderate doses, from 10 to 30 grains, will effectually overcome ordinary alcoholic intoxication in a short time. Its properties stimulant and eliminative, led me to believe that it could be used with good effect in larger doses in the more pronounced symptoms of alcoholism.

A suitable case in which to test the remedy did not present itself until last year. I was called late one night to see a laboring man who had been in the habit of drinking intermittently for the previous ten years. In 1891 he was treated according to the Keeley method, which "cure" was followed by a speedy relapse. Three days before coming under observation he began drinking heavily, which culminated in an attack of acute delirium for which I was consulted. He was found in bed, dressed, and had the usual reptile hallucinations. The pulse was somewhat rapid, full and strong, and quite typical of alcoholism. He was very restless, moving incessantly, at times starting from bed and making efforts to ascend the sides of the room. He would frequently have fallen had he not been restrained. The history and symptoms were those of a typical case of delirium tremens.

Having some knowledge of the patient and his tolerance of drugs, I began by administering one grain of morphine hypodermically. This without the slightest effect. Several hours after the administration of the morphine, and after the symptoms had all become aggravated he was given one drachm of chloride of ammonium. This was promptly vomited. After waiting a short time another was given, which was retained. It acted quickly and favor

ably In fifteen minutes the hallucinations of snakes and lizards had disappeared, and he had become quite rational In forty minutes he was asleep, and it was not thought necessary to continue the administration of the drug

It was afterward ascertained that this was the patient's third attack He had used morphine often and in large doses for the relief of headache and insomnia following over-indulgence in alcohol

The above case may, of course, have been exceptional in the favorable action exercised by the ammonium salt on the alcoholic delirium It is improper to draw conclusions from a single case, but I offer these notes with the hope that they will encourage those in a position to do so to try the drug in large doses in the treatment of this troublesome affection

BOOK REVIEWS

A SYSTEM OF MEDICINE BY MANY WRITERS. Edited by Thomas Clifford Allbutt, M.A., M.D. etc. Vol I Macmillan & Co London and New York. 1896

Dr Allbutt is to have the assistance of many men whose names are well known in the medical world and are themselves a guarantee that the System of Medicine will be of the first order. From the list of authors we take the following names at random: Adam Watson-Cheyne, Dreschfeld, Duckworth, Foster Goodhart, Jonathan Hutchinson, Kanthack, Ormerod, Eustace Smith, Sims Woodhead.

The editorial work of Dr Allbutt has evidently been carefully done. There is a system that is plainly to be seen running through the entire volume. Even where different writers write on the same subject—as for instance in the chapter on Diphtheria contributed by four writers—the work has been so carefully allotted that there is no overlapping and it might well appear to have come from a single pen. Dr Allbutt's introduction is well worth careful reading and re-reading. It is philosophical in tone and unusually well written. We cannot refrain from quoting at length a few of the many striking epigrammatic sentences. So incalculable are the properties of things so contingent is each event upon every other that anything like a final presentment of causation is impossible nay inconceivable by our limited faculties and our propositions are but provisional formulæ, which if permitted to harden into aphorisms become fetters of thought. Our formulæ then should be in a state of continual flux fresh exceptions are continually turning up, and fresh qualifications are incessantly made. On the other hand without provisional formulæ we cannot act, and in actions lie the purpose and end of medical studies.

Clinical diagnosis however, is not investigation—a distinction some practitioners forget, diagnosis depends not upon all facts but upon crucial facts. Indeed we may go farther and say that accumulation of facts is not science science is our conception of the facts the act of judgment, perhaps of imagination by which we connect the unknown with the known. 'Disease is a state of living organism a balance of function more unstable than that which we call health its causes may be imported or the system may 'rock' from some implicit defect but the disease itself is a perturbation which contains no elements essentially different from those of health but elements presented in a different and less useful order. Diseases, therefore have no analogy with the genera and species of the biologist. They may be arranged for convenience of reference by any external character such as locality, but a natural classification of diseases is an arrangement of them in order of genetic affinity and is a description of their causation. Diagnosis is the recognition of a disease already classified and the reference of it to its place and thus differs from research or discovery. Classification is a measure of our knowledge of the pathology of all organisms and a pathology limited to man, like a geocentric astronomy, is, or ought to be a notion of the past.'

The different articles are written almost entirely by British authors and while things are viewed frequently through British glasses, there is little that is

provincial, and a knowledge of the work done on the Continent and America is plainly to be seen in every article. It is a pleasure to note this, because one is constrained to say after reading many of the articles by leading German authors that things British and American are too apt to be overlooked.

In this volume there are several chapters dealing with preliminary topics, and then the subject of fevers is taken up in a preliminary division. Such topics are discussed as Medical Statistics, Anthropology, Temperament, Inheritance, Inflammation, Fever, New Growths, Principles of Therapeutics, Hydrotherapeutics, Electricity, Massage, etc.

We have been particularly interested in reading the most excellent article on Inflammation by Dr. Adam, of Montreal. It is one of the most systematic, complete and well condensed articles upon this subject that we have seen. It is fully up to date. Careful recognition of the work and theories of different investigators is given, and as each point is discussed a summary of the results follows. Dr. Adam states clearly his own views, and in what respects they differ from the generally accepted views of others. Particularly commendable is his clear description of the varieties of leucocytes. The little table on page 79 shows the various classifications of different writers and the practical identity of the various cell forms, though frequently passing under different names. We may note in passing, too, that Adam believes that the so-called neutrophile of Ehrlich is in reality an oxyphile—that is, an eosinophile—but with finer granules than those contained in Ehrlich's eosinophile. Adam clearly recognizes that phagocytosis, as taught by Metchnikoff, has been conclusively proven to be of great importance, but he as well holds with Buckner and others that there is an extra-cellular action, and that the blood-serum has a power of neutralizing microbic and other irritants, whether the fixed tissue cells of the body have any action upon living irritants or not, is a matter that has not been as yet definitely ascertained. He discusses clearly, too, the subject of fibrous hyperplasia, believing that hyperplasia in many instances is clearly of inflammatory origin, in others, probably of a non-inflammatory origin, and again, of neoplastic origin. Adam has also adopted a most rational plan of describing the various phenomena of inflammation, and gradually leading up to a definition, rather than starting from some arbitrary definition of inflammation and making the phenomena fit in with this definition. The definition he has preserved until the last page of his article. He defines inflammation "as the series of changes constituting the local manifestation of the attempt at repair of actual or referred injury to a part, or, briefly, as the local attempt at repair of actual or referred injury."

The selected bibliography given on pages 134-139 will be of great value to any one desiring to study the subject of inflammation in the original articles.

Another article in this volume that is worthy of the highest praise is that of Dr. Kanthack upon the General Pathology of Infection. This, like the article of Adam, is complete yet concise, and wonderfully systematic. We cannot refrain from quoting Kanthack's opinion regarding the antitoxin treatment of diphtheria, particularly as the question here in America, if not in other lands, is still regarded as an open one by many excellent practitioners. He says "Its success is so undoubted in diphtheria as to silence all opposition and to lead us to hope for better and better results. It is a specific remedy, and it surpasses any other which has ever been employed for the treatment of this disease. Serious harm, such as nephritis or suppression of urine, never results."

We can merely refer by name to the other articles contained in this volume. While of course there is a difference in the value of them they are still of a uniformly high order. In the second division are included articles on Septicæmia, Pyæmia, Erysipelas, Infective Endocarditis, Puerperal Infections, Epidemic Meningitis, Influenza, Diphtheria, Tetanus, Typhoid Fever, Cholera, and the Plague.

We were surprised to find that in Dreschfeld's article on Infective Endocarditis nothing is said concerning the symptomatology, diagnosis, or treatment of the disease—etiology and history being alone discussed. This may be because the disease is looked upon in its symptomatology as not differing from septicæmia and pyæmia that are discussed in this connection, but yet it would seem wise to have under the heading of Infective Endocarditis a concise description of its symptomatology and diagnosis.

If the other volumes are of the high order of merit of this one, Allbutt's System of Medicine will be a most valuable work for the student or practitioner.

J. B. HERRICK.

FOOD IN HEALTH AND DISEASE. By I. Burney Leo, M.D., F.R.C.P. New and Revised Edition. Philadelphia: Lea Bros. & Co. 1896.

The first edition of this work appeared in 1889. Since then several reprints have been called for, in which no noteworthy changes were made. The changes and additions in the present edition consist more especially in the omission from the first part of certain general details, whereby greater space is obtained for the consideration of the special or more practical subjects of diet in certain diseases.

The work begins with a consideration of the nature, origin, and purpose of food; a classification of various foods; and a definition of metabolism. In considering the nutritive value and uses of different classes of food, the author especially negatives the too prevalent ideas regarding the value of nitrogenous substances in maintaining tissue waste. Regarding the vexed question of the relation of fat to albumin, he says: "Albumin (together with water and salts) is able *alone* to support the vital processes, and it is the only alimentary substance that can do so. It can therefore replace in nutrition the fats of carbohydrates, but when taken exclusively, it is a very unsuitable diet, as the amount thus required to maintain the constitution of the body is disproportionate and wasteful. As has already been said, it is now generally admitted that fat can be formed from albuminates. Pettenkofer and Voit concluded from their experiments that albumin is split up in the body into a nitrogenous and a non-nitrogenous part; the latter with nearly the same composition as fat may be either stored up in the organism or further transmuted into carbonic acid and water."

Chapters III, IV, and V contain a description of animal and vegetable foods, together with their chemical analyses, and also the composition of beverages. The writer carefully considers the relation of tea, cocoa, and coffee to digestion and alimentation. He for the most part finds them agreeable aromatic substances which have the property of stimulating the gastric secretion and to some extent of aiding digestion, although he admits that their excessive use in all, and even moderate indulgence by some constitutions, will be followed by bad results. The value of coffee as a beverage, the author thinks, is largely dependent on the skill and care used in its preparation.

Under the term "alcoholic beverages" the author includes a great variety of familiar drinks, into the composition of which alcohol enters in widely varying proportion. He recognizes that the great conflict in opinion in connection with this subject is likely to continue as long as prejudice and dogmatic enthusiasm are allowed to take so large a part in the discussion of a scientific question. He is of the opinion that only a portion of alcohol taken into the body is eliminated as such, and that the remainder is burnt or retained in the body in the same manner as any other food of similar chemical composition. In small quantities it stimulates the secretion of the gastric juice and promotes appetite, but in large quantities it has the opposite effect and is a retarder of digestion. The effects of alcohol vary greatly in different individuals, and what will prove stimulating and agreeable in one person will be depressing and narcotizing in another.

Chapter VI deals with the annexation of food—its digestion, assimilation, and neutralization. In this chapter we have an excellent presentation of the physiological processes concerned in the assimilation of food.

Chapter VII deals with the cooking, preparation, and preservation of food, covering the general effect of different processes rather than the technique of special methods.

The next section deals with the scientific basis of dietaries and rations, especially in relation to bodily income and outgo. It contains tables of hospital dietaries, and rations for prisoners, soldiers, and sailors. This chapter will prove of especial value to those who have to advise regarding the feeding of large numbers of persons.

The order and frequency of taking food is studied in reference to the habits of different races and the character of the work which must be done.

The remaining portion of the first part of the work deals with food in relation to age and condition and climate. In this section we have an excellent study of infant-feeding.

Part II deals with diet in different diseases, opening with a chapter on Feeding in Acute Disease and in Convalescence, and including a description of the various "cures" which have been from time to time devised for overcoming certain diseased states. Among these are the "dry" cure, milk and whey cures, the koumiss cure, and the grape cure.

The work closes with some selected hospital dietaries, an account of sterilization and pasteurization of milk, and select recipes for the preparation of food.

Taken on the whole, the work of Dr. Yeo remains one of the best and most practical hand-books on dietetics in the English language. It is not too large, nor is it encumbered with laborious discussions of mooted physiological points, at the same time it is a scientific exposition of the relation of food to health and disease. The practical side of the question receives the greater emphasis, and for this reason the book is a most valuable one for the practicing physician.

PRACTICAL NOTES ON URINARY ANALYSIS By Wm B Canfield, A M, M D
Second, Revised, Edition Geo S Davis, Detroit, Mich 1896

The fact that a second edition of this little work has been called for is sufficient proof that the book has merit, especially when we take into account the multiplicity of works which have been issued on this subject in

recent years. Its 105 pages are taken up with the discussion of the practical and clinical points in the examination of the urine. The refinements of the expert chemists are we think wisely, omitted. The author lays stress upon the tried and reliable tests for detecting normal and abnormal substances in the urine and tries to point out the little errors that may creep into such an undertaking and to guard against certain mistakes by emphasizing the important and carefully avoiding the superfluous.

The work is divided into seven chapters. The first deals with the General Character of the Urine, the second with the Normal Constituents, the third with the Abnormal Constituents, the fourth with Sediments, chapter five deals with the Urine in Various Diseases. The work closes with a chapter on Reagents and Apparatus and one giving the Order of Analysis.

The writer, we think justly emphasizes the importance of estimating the amount of urea contained in the urine, but we think he rather slight the question of uric acid. In testing for albumin he gives preference to the established tests, such as heat and nitric acid, Heller's picric acid and trichloroacetic acid. A number of other reagents are described and the section on albumin testing is closed with a description of Dr. Oliver's quantitative estimation method. The importance of centrifugalizing the urine in examining for sediments and casts is emphasized.

The work forms one of the Physician's Leisure Library Series which have proven such handy and useful volumes. It is fairly well printed and contains a few illustrations, some of which are good. It is to be regretted that the table of urinary sediments is so crudely drawn.

A TEXT BOOK OF SPECIAL PATHOLOGICAL ANATOMY. By Ernst Ziegler. Translated from the eighth German edition and edited by Donald Macalister, of St. Johns College, Cambridge and Henry W. Cattell of the University of Pennsylvania. Sections 1 to 8. New York: Macmillan & Co. 1896.

With its first appearance in English Ziegler's Special Pathological Anatomy took first rank as a text book both in this country and England. The great advances in our knowledge of the subject matter which have been made since that time have been embodied in the five successive German editions that have appeared in the meantime. The work has been so altered and enlarged that in preparing this (the third English) edition it has been necessary to entirely rewrite the text and to recast the bibliographical supplementary portion.

The second volume containing the sections on the alimentary tract, liver and pancreas, respiratory and genito-urinary systems, eye and ear, is already in press and may be looked for shortly. The translators express the hope that they may at an early date prepare under the author's sanction and assistance the part relating to general pathological anatomy.

The present volume deals with the special pathological anatomy of the following subjects: blood and lymph, vascular mechanism, the spleen and lymph glands, the osseous system, the muscles and tendons, the central nervous system, the peripheral nervous system and the skin. The text is illustrated with 208 cuts, mostly wood, with one or two colored drawings. There is some improvement in illustration to be noted over previous editions, still some of the cuts in the present edition are badly drawn and while for the most part they are sufficiently diagrammatic to illustrate the text and point the way for begin-

ners, they are still far from furnishing anything like a true representation of the tissues

It is not our purpose to go into an extended review of each of the chapters, as the work of Professor Ziegler has been a standard text-book in our schools for so many years. It is sufficient to say that the revisers and translators have brought the work down to the present time, and in it are found the latest researches and observations in the department of which it treats

A MANUAL OF MATERIA MEDICA AND PHARMACOLOGY By David R Culbreth, Ph G , M D Philadelphia and New York Lea Brothers & Co 1896

The present volume proposes to deal with the needs of both physicians and pharmacists, and hence has been, to use the author's words, made to treat of all official drugs, organic and inorganic, included in our Pharmacopœia, together with their preparations, official and non-official. Of each enough is said to interest and furnish general information, historic and otherwise, the endeavor being always made to stop short of incumbrance with details, though the purely syllabic form after which many text-books are fashioned has been avoided.

All drugs once official in the United States Pharmacopœia, but now dropped are taken up. Although some of these are rarely prescribed, yet many are retained in stores and have a limited sale because of their pharmacal properties and years of official recognition. No similar text-book furnishes these data.

Allied species of organic drugs frequently so resemble the official species as to furnish possible admixtures, adulterations, or dangerous substitutions, consequently, in order to identify the genuine, some of the spurious kinds most likely to be encountered have been briefly described.

Important unofficial synthetic compounds form a great factor in drug store supplies, and bid fair to grow in favor with the profession, while their number is very great, only the most useful have been considered.

The failure to discuss untoward effects of drugs—so important in all directions, inclusive of the medico-legal—is a serious blemish in a work which claims such practicality.

The style of the work shows that the author is more of a pharmacist than a physician. The book is well printed.

ELEVENTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF PENNSYLVANIA

This large volume, transmitted to the Governor in December, 1895, by Benjamin Lee, M D , contains over seven hundred pages, with numerous cuts, plates, and engravings. While it deals largely with the operations of a single executive body, much will be found within its pages that is of general interest to the public-health officer and the hygienist.

PROGRESS OF MEDICAL SCIENCE

SURGERY

UNDER THE CHARGE OF WELLER VAN HOOK, A.B. M.D.

Professor of the Principles and Practice of Surgery Northwestern University Medical School, Chicago

A New Dressing for Fracture of the Clavicle —

Dr M. L. Harris, in the *Chicago Medical Recorder* for September, 1896, describes a new dressing for fracture of the clavicle. A piece of ordinary roller bandage five or six feet in length is laid over one shoulder like a suspender. The chest is then encircled by a roller three or four inches in width by eight or ten yards in length, this should be quite firmly applied, so it will not slip. A piece of muslin about three yards in length, and in width equal to the length of the arm from the axillary fold to the bend of the elbow is folded in the middle, and, beginning at the ends, torn down the centre to within about two inches of the fold. This makes a four tailed bandage of the required width folded in the middle. The arm is passed through the fold so that the untorn portion comes opposite the outer surface of the humerus. All four tails pass behind and around the body in the same direction. By drawing on these the arm is carried backwards and inwards, the scapula upward and inward toward the vertebral column, while the tip of the shoulder and consequently the outer fragment of the clavicle are carried upwards, outwards, and backwards into place. The extent to which the arm should be drawn backward and inward depends entirely on the amount of displacement and deformity to be overcome. The object of tearing the piece into four tails is now readily seen. When the arm is drawn backwards in this manner the anterior and outer surfaces are obliquely placed, so that were the bandage in one piece when drawn taut it would be making pressure at its upper edge while its lower edge would be very loose. In passing the four tails around the body, they cross so that the two upper become the lower and the two lower the upper. In this way the entire width of the bandage is tight, so that the pressure is uniformly distributed throughout the whole length of the arm. The pressure coming almost entirely on the outer side of the arm, no matter how firmly it is drawn it cannot materially interfere with the circulation. The four tails are continued around the body as far as they will go and pinned to the first roller.

A roller is now firmly applied around the body and arm together, and two large safety-pins are placed just in front of the arm, passing through all layers of bandage, including the first body-roller. The loose ends of the first strip, or suspender, laid over the shoulder, are now passed over the opposite shoulder and pinned or tied, when the dressing is complete.

It is not the intention that the suspender should offer pressure at the seat of the fracture, and should it do so the ends should be carried back over the same or well shoulder and tied. The sole object of the suspender is to prevent the dressing from slipping downwards, owing to the tapering of the chest and body toward the waist. The object of the first roller about the body is simply to supply something to pin to, consequently, if it be insufficient in length or loosely applied, it will slip, thus allowing the entire dressing to become loose and inefficient. When convenient, this part of the dressing may be advantageously replaced by a piece of adhesive plaster four to six inches in width and long enough to encircle the chest. Standing in front, it should be applied from the patient's left to right in fracture of the left clavicle, and from right to left in right-sided cases. The posterior end of the plaster should be folded upon itself for about two inches, so as to leave a free end which will not adhere. This free end should come about opposite the anterior border of the axilla. The four-tailed bandage is now applied, and the ends pinned to the free end of the adhesive plaster. This effectually prevents slipping.

As will be seen, the forearm is left entirely free. It may be carried in a sling or left hanging, as the comfort of the patient dictates. Motion at the elbow cannot be communicated to the clavicle or shoulder, for the shoulder in this dressing is absolutely fixed. Should the forearm show any tendency to swell, as it may occasionally if the four-tailed piece is a little too wide, so as to encroach on the superficial veins at the bend of the elbow, this may readily be prevented by the application of a light roller.

In view of the large number of dressings and appliances which have been devised for this very common fracture, a new one must needs possess some advantages in order to secure for it special consideration. The dressing is simple and easy of application, it absolutely fixes the arm and shoulder in the position which most perfectly reduces the deformity in the large majority of fractures of this bone, and it is comfortable. Dr Harris has never had a patient express the slightest uneasiness while wearing it, which is in marked contrast to the discomfort of many dressings, some of

which are almost unbearable. The seat of the fracture is at all times exposed to view, where it can be inspected at will without displacing or removing the dressings. The forearm and hands are perfectly free and can be used at the patient's pleasure, thus avoiding disuse atrophy and stiff joints from confinement.

The Semi-centennial of the Discovery of Anesthesia —

The London *Practitioner* for October, 1896 is devoted to the celebration of the jubilee of anesthesia. Dr Frederick W Hewitt, anesthetist to the London Hospital has an article on 'The Past, Present, and Future of Anesthesia.' Dr Hewitt, it will be remembered, is the brilliant author of a most excellent work on the subject of anesthesia. Public spirit in England, which has much to do in general with retarding the advance of the medical profession by interfering with free experimentation upon the lower animals and by condemning in an ultra conservative English way new procedures in surgery, has advanced, on the contrary the art of anesthesia, and this for the reason that deaths from anesthetics alone cause profound disturbance of the public mind, and the consequent reaction against the surgeon in charge is very great. The result has been that special anesthetists have been appointed to all the important hospitals, and anesthesia is not instituted without very grave consideration and the most elaborate precautions to prevent accident. Dr Hewitt is one of the best exponents of the art. He does not look forward to very great advances in anesthesia in the future, as from the very nature of the case it must be difficult or impossible to find an anesthetic which will be free from dangerous qualities. We may, however, hope for better combinations of the anesthetics we already have, and possibly better methods of administration.

Mr Geo Rowell has an article on the Work of Simpson, Snow, Lister, and the Hyderabad Chloroform Commission. He summarizes our present knowledge as follows. Chloroform is a dangerous drug because of its deleterious effect upon the heart. If air limitation be carefully avoided and the patient's various symptoms carefully watched, an overdose should never occur. This being avoided, the risks during chloroform administration are mainly associated with imperfect degrees of anesthesia, and the great risk lies in the occurrence of asphyxia however produced. Although with experience and care the number of chloroform deaths is capable of considerable reduction, yet chloroform is not, in spite of its advantages, the most desirable drug for routine use in producing anesthesia. Still it is of great value in cases in which from some dis-

eased condition of the patient or from the particular requirements of the surgeon, ether and mixtures are contra-indicated, and this, beyond doubt, is its true sphere of usefulness

Mr F Woodhouse Braine, in an article on the Administration of Ether, recommends that nitrous oxide be given to the point of producing insensibility, and that then the Ormsby inhaler in which has been poured about two ounces of ether be applied, a single inspiration of air in the interval should not be allowed. This is a favorite method of administering ether in England, and seems to have many points in its favor, although the immediate effect of the nitrous oxide upon the patient is certainly not pleasant to look upon

Mr George H Bailey writes on the Principles of Ether Administration. Dr Dudley W Buxton tells the story of the Discovery of Anesthesia, and Mr Frederick Treves writes a short and valuable article on the Use of Anesthetics in Operative Surgery. To make the picture complete, Dr Alfred Hartley contributes an article on Anesthetics from the General Practitioner's Point of View. Instruction in the art of administering anesthetics is insisted upon by Mr Marmaduke Sheild. Mr J Milne Bramwell writes on Hypnotic Anesthesia. Editorial articles on the pioneers of anesthesia, Wm Thomas Green Morton, the discoverer of ether anesthesia, and Sir James Young Simpson, who first used chloroform as an anesthetic, are adorned by excellent portraits of these two great men

A Case of Myositis Ossificans —

Mr Jonathan Hutchinson continues to give us occasionally a number of his excellent *Archives of Surgery*, of which he sustains alone the burden of composition. His observations are very many times of quite rare diseases, and his insight is unusually clear. In the April 1896 number are cited some interesting cases of myositis ossificans. A case is related in which the ossifying disease affected symmetrically the pronator radii teres of each forearm and no other muscle. A little boy of three years was brought to Mr Hutchinson on account of a deformity of his left forearm: the limb was quite shapely, and nothing could be observed at first sight further than that it was always kept in strong pronation. The boy could take hold of any object, but always did so with the back of the hand uppermost. On examination, the forearm was found to be fixed in this position. There was nearly an inch of shortening in the length of the ulna as compared with the other arm. The styloid process of the ulna projected somewhat. (In the other arm supination

appeared to be restricted, but was by no means lost) The elbow admitted of free flexion, but the biceps muscle on the left side was so small that at first Hutchinson thought it was absent It was doubtful whether or not the upper third of the shaft of the radius was absent, there was certainly a want of support in grasping the forearm in this position, but two observers differed as to whether it was present or not, the head was certainly present There was no history of any injury or inflammation The condition had first attracted attention about six months before, but some degree of it might not improbably have been congenital

On the second consultation, nearly three years later, a condition was discovered which had escaped notice at the first Obliquely down the upper half of the front of the forearm there ran a bony ridge This ridge, on being traced, appeared to correspond exactly with the position of the pronator teres At its insertion into the radius and through its whole course the muscle appeared to be converted into hard bone At its upper origin this hardening was less definite, but still present The ridge thus constituted projected and was easily felt Evidently the muscle was much shortened

In the other arm, which was in a position of semi pronation and could not by any force be supinated, the muscle could be felt to be hard and contracted, but was not certainly bone

Taxis in Strangulated Hernia —

Anent the subject of strangulated hernias Mr Jonathan Hutchinson (*Archives of Surgery*, April, 1896) refers to the fact that he has already pleaded in times past and within antiseptic days, for a return to what he calls the legitimate use of taxis in strangulated hernia He adds

"While I thus insist that taxis has *per se* very little risk attending it—the real danger being in delay—I am concerned to reiterate my conviction that the *per se* dangers of operations are real and not inconsiderable Statistics seem to fully prove what is in this matter *a priori* probable The operation is not infrequently, and especially in inexperienced hands a difficult one Unexpected conditions may be encountered which may cause prolonged exposure of the parts Now and then there may be troublesome hemorrhage Above all, however, it is by no means proved that the exposure to the air of the peritoneum in a congested and more or less damaged state can be done with the same impunity as if it were uninflamed No one will rejoice more than myself when statistics show that the chance of recovery after operation is, in similar cases, equal to that after

taxis, but for the present it is my duty to protest that the facts look much otherwise "

We can scarcely believe that operators in America of any experience in antiseptic work will agree with the rather pessimistic view taken by our English confrère Of course, in remote country districts where skilled surgical attendance is difficult to obtain, the remarks of Mr Hutchinson would be rather encouraging than depressing

PATHOLOGY

UNDER THE CHARGE OF ARTHUR R EDWARDS, A.M, M D,
Professor of Therapeutics, Northwestern University Medical School, Attending Physician,
Cook County Hospital, Pathologist to Cook County St Luke's,
and Wesleyan Hospitals

Spontaneous Rupture of Heart —

A case is reported by Kelynack (*Lancet*, July 18, 1896), in which a patient who had been somewhat deranged mentally and who suffered from syncope a number of times during the last six months of his life, fell suddenly, but in a few minutes recovered consciousness Physical examination of the heart showed no adventitious sounds nor increase in cardiac dullness Examination of the body was quite negative On the third day the patient improved, and his friends even proposed moving him home, when he was seized with convulsions, deepening into coma with irregular and stertorous respiration

At the necropsy, the coronary and cerebral arteries were extremely atheromatous, whereas the clinical examination revealed but slight arterio-sclerosis in the peripheral vessels By way of comment, we consider this a very important point in dubious cases in which symptoms may suggest arterio-sclerosis of internal viscera, though peripheral arterio-sclerosis may be lacking We must then remember that there exists no invariable correspondence between the condition of external arteries and that of the more deeply situated ones In this case the coronary arteries were almost obliterated in places, the myocardium suffering malnutrition from their closure The usual myomalacia cordis in the left ventricle was found, with rupture of the left ventricular wall The heart was contracted, and the pericardial sac was filled with clotted blood The case is of interest clinically since the patient lived three days, and of medico-legal importance in that death after cardiac rupture is not necessarily instantaneous

The reviewer saw the autopsy of a case dying in Schrotter's

clinic in Vienna in which a bullet had perforated the left ventricle, causing its rupture and producing hemopericardium. The patient lived three days, and then died from sudden exertion, without which it is possible that the penetrating wound would have healed and complete recovery ensued.

Gonorrheal Ulcerative Endocarditis —

Thayer and Blumer (*Bulletin of the Johns Hopkins Hospital*, 1896) and White (*Lancet*, 1896, No. 3783) publish cases of ulcerative endocarditis believed to be of gonorrheal origin. Councilman, His and Von Leyden have described gonococci in the endocardium, and asserted that they could there excite inflammation. Positive proof from cultures is yet wanting. In Thayer's case gonococci were cultivated from the blood, upon blood serum with agar agar, while other media gave negative results. Cocci, morphologically gonococci, were found upon the valvular vegetations, but could not be cultivated. The organisms were found on the genitalia on microscopic examination. White's case lacks completeness in bacteriological confirmation.

Ricker (*Centralbl für Allg Pathol und Patholog Anat*, bd viii, Nos. 8 and 9) has found in a relatively large number of cases of aberrant supra renal "rests" in the kidney, that there existed not only a simple heterotopia but also complicated malformations, as the renal tissue was itself involved in the formation of the adrenal foci. During the embryonal developmental disturbance, detached renal tubules may form cysts and papillæ in the heterotopic supra renal tissue. Ricker believes it thus possible that true renal tumors may arise from the supra renal bodies or separated fragments of such tissue.

It is conceivable that adrenal tumors very frequently arise in the kidneys, since here complicated relations exist between renal and supra renal tissue—an explanation offered by Ribbert in his theory of tumor formation.

Ricker suspects that many kidney neoplasms are combinations of kidney and supra renal tissue.

An Unusual Form of Tubercular Meningitis —

Busse (*Virchow's Archiv*, bd. 145) reminds us that in tuberculosis of the pia mater there are two principal types: in one the tubercles caseate and are surrounded by an exudate which is fibrinous or even purulent, in the other, solitary tubercles with caseated centres are located in the pia. The author describes a peculiar type

characterized by lack of caseation in the tubercles, and the newly formed granulation tissue shows a tendency to cicatrize. The pia becomes indurated, giving a pathological condition more frequently seen in syphilis, than in tuberculosis, of the meninges. The affection seems to run a chronic and an insidious course. Similar cases are very scarce in literature.

Busse also mentions an instance of tuberculosis in the triceps muscle in which there was no caseation and the cicatricial change was so pronounced that the lesion could be readily mistaken for syphilis, were it not for some typical miliary tubercles in the vicinity of the cicatrix.

BACTERIOLOGY

UNDER THE CHARGE OF GEORGE H. WEAVER, M.D.,
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Bacteria in Noma —

Nicolaysen (*Norsk Magazin for Laegevidenskaben*, February, 1896, *British Medical Journal*, July 11, 1896) has made bacteriological examinations in two cases of noma (occurring in two girls, respectively three and fourteen years of age). The cultures and preparations were made in both cases from the boundary between the necrosed and healthy tissue. In both cases cocci were found together with a bacillus which was polymorphous and resembled the diphtheria bacillus. The cultures of this bacillus from the first case had no pathogenic effect upon animals. The author considers the bacillus found by him to be different from the one described by Schimmelbusch.

These findings correspond to those obtained by Bishop (*Transactions Chicago Pathological Society*, vol. 1, p. 252), who reports cases of noma from which a bacillus was isolated resembling very closely in its morphology the diphtheria bacillus, but with slight pathogenic effect upon animals.

Micrococcus Tetragerus Septicemia —

Chaufford and Ramond (*Archives de Méd. Expér.*, May, 1896) give a report of the first cases of general infection in the human subject by this organism, so far observed, although it has previously been found in connection with local infections and is frequently found in tubercular cavities in the lungs.

The first case occurred in a girl of fifteen years. Following influenza, there was an inflammation of the hips, knee, thumb,

shoulder, and elbow joints, together with dyspnea, chills, and an erythematous eruption of the skin. Death occurred on the eleventh day. At the autopsy there was found a pleuritis and pericarditis. On the fluid in the pleural and pericardial cavities many oil drops floated. There were abscesses in the wall of the left ventricle. In one of the tricuspid segments was a small round ulcer without vegetations. Infarcts were found in the lungs, and abscesses in all the organs, with fatty like contents. Cultures from all the organs gave a pure culture of the micrococcus *tetragenus*, except in the case of the lung (where the colon bacillus was also present).

The second case occurred in a young man. There were present, at the onset, chills, nausea, headache and later extreme swelling of the right knee-joint. Extensive infiltration of the right hip and leg followed. The inguinal glands were enlarged. There was an ulcer on the tongue opposite a carious tooth. Death followed on the tenth day. No autopsy was made. Cultures from the knee, from the ulcer on the tongue, and from the cavity in the tooth, showed the micrococcus *tetragenus* present in pure culture in the former, and abundantly present in the ulcer and tooth cavity.

The cultures from both cases were pathogenic for animals, and in them the only character of the pus was also observed.

Bacteriological Diagnosis of Epidemic Meningitis by Lumbar Puncture —

W. Holdheim (*Deutsche Med. Woch.*, 1896, No. 34) gives the results of the bacteriological examination of fluid obtained by lumbar puncture in four cases of epidemic meningitis. In all the cases the meningococcus *intracellularis* of Weichselbaum was found in the fluid. The fluid obtained by puncture was centrifugated, and from the sediment cover glass preparations were made in the usual way and stained according to Loeffler. In all the preparations numerous leucocytes were found, in which were often seen three or four pairs of cocci. The diplococci were very like gonococci in appearance, and lance-shaped diplococci were not found. Pure cultures of the meningococcus were obtained upon glycerin agar agar in each case.

The author holds that by this method a diagnosis can be easily made in epidemic meningitis by lumbar puncture, and a differential diagnosis during life between it and tubercular meningitis.

The Theory of Auto Intoxication —

C. Fermi and P. Casciani (*Centralbl. für Bakt., Parasit. und Infekt.* 1896, Bd. XIX, Nos. 22-23) discuss at length the theories regarding the conditions usually included under auto-intoxication,

and conclude that the disease symptoms due to constipation are dependent upon various causes. Neither the mechanical theory of Glenard, nor the nervous theory of Bouceret, nor the auto-intoxication theory of Bouchard, is sufficient to explain the clinical picture observed in habitual constipation. According to the understanding of Ferri and Casciani, the symptoms may be produced (1) by auto-intoxication from absorption of toxic materials produced in the gastro-intestinal canal, (2) by auto-intoxication due to lessened or increased secretion of normal or pathological materials in the intestine, and most commonly (3) by reflex action, which originates in mechanical or chemical irritation or in a sluggish functional activity of the intestine.

THERAPEUTICS

UNDER THE CHARGE OF N. S. DAVIS, JR., A. M., M. D.,

Professor of the Principles and Practice of Medicine and of Clinical Medicine, Northwestern University Medical School, Chicago

Ferripyrrin, a New Styptic.—

Dr. L. Hedderich, in *Therapeutic Progress*, July, 1896, relates his experience with this substance—a double compound of ferric chloride and antipyrin, with the formula $\text{Fe}_2\text{Cl}_6 \cdot 3(\text{C}_{11}\text{H}_{12}\text{N}_2\text{O})$. It is a beautiful, fine, orange-red powder, which dissolves easily in cold water, forming a dark red solution.

As appears from the title, this new drug, "Ferripyrrin," belongs to the class of styptics, which, although not playing any considerable rôle in modern therapy, are nevertheless in many cases most convenient adjuncts.

For instance, the medical man might be able to get on without ferric chloride, although he frequently has recourse to it when simple plugging or other means are ineffectual in staying violent hemorrhage, especially from cavities of the body. Notwithstanding that ferric chloride can generally be relied upon to accomplish the desired result, its by-effects are extremely unpleasant, and its corrosive action frequently induces diffuse superficial wounds and exfoliations. Rhinologists especially have reason to avoid it, as its employment is often associated with the formation of extensive synechiæ.

Ferripyrrin possesses, however, important advantages in this and in other respects. *No corrosive action, such as attends the employment of ferric chloride, has been observed after prolonged contact of ferripyrrin with the mucous membrane of the nose, even when saturated*

plugs of cotton wool were used The mucous membrane of the nose exhibited a slight temporary yellow discoloration, and a strong astringent action was exercised, moreover, a slight local anesthesia at the point of application was observed. The excellent hemostatic property of ferripyryn appeared in a number of hospital cases, where it was employed with the greatest success. Professor Jurasz has tried it in his private practice and obtained equally favorable results.

It would be superfluous to give all the trials in detail, especially as the effect was always the same. Its styptic value was demonstrated in a case of extremely vascular myxoma of the nose, the patient being a girl 18 years of age. Even on careful probing, the tumor commenced to bleed extensively. While otherwise very firm plugs, frequently renewed, had been necessary, one or two small plugs of cotton wool saturated with ferripyryn solution sufficed to arrest the bleeding. A similar experience was met with in a pharyngeal tumor where hemorrhage very easily set in.

The method of application is similar to that of ferric chloride. Generally an 18 or 20-per cent aqueous solution is employed, small plugs of cotton wool are saturated with this and then laid upon the bleeding surface. Ferripyryn can, however, also be applied in powder form undiluted, and thus may perhaps have certain advantages, but the author has only occasionally used it in this form, nor has he had any experience of irrigation with dilute solutions.

The indications are practically the same as for ferric chloride. For internal administration Dr. Witkowsky has specified an average dose of eight grains for adults, and with this relatively large dose, as compared with ferric chloride, perhaps a better result may be expected in hemorrhage of the stomach. The drug can also be employed, by virtue of its astringent character, in gonorrhea, in which direction Witkowsky offers prospects of good success, 1 to 1½ per-cent solutions are recommended.

The Prevention of Sea-sickness —

M. Charteris says (*Canadian Practitioner*, March, 1896) most passengers setting out for sea voyages, whether long or short, commence their trip under conditions unfavorable to exemption from sea sickness. They eat heartily and unwisely. The result is, when the steamer gets under way and meets the ocean swell, their stomachs rebel and expel their contents. It cannot be too strongly insisted upon that the diet for the first two days in a long voyage

should be "dry" and "spare." No full meal should be indulged in. Soups and pastries should never be taken.

But experience shows that diet, though very important as a prophylactic, will not be sufficient to guarantee exemption from sea-sickness. Other means must be adopted, and of these the most successful are (1) A clearing out of the *primæ viæ*, not by a saline, but by a liver-acting aperient such as calomel or blue pill, which should be taken on the night before embarkation, and be followed in the morning by a saline purgative such as citrate of magnesium. (2) When on board the steamer, if the passage be by the night service, a full dose of the solution of chloralamid and bromide of potassium, known as chlorobrom, should be taken, and the passenger should at once retire to his cabin and rest and sleep. If by the day service, a minimum dose should be taken, the passenger should remain on deck. Only under exceptional circumstances is a second dose necessary.

Treatment of Migraine Due to Paraxanthin Poisoning.—

E. B. La Ferre (*Denver Medical Times*, August, 1896) attributes migraine to paraxanthin poisoning. He reports a case of persistent attacks which he thinks was attributable to this cause, and which he succeeded in curing by the following treatment. One-grain doses of potassium permanganate, three times daily, after meals, salicylic acid, five grains, twice daily, a teaspoonful of sodium phosphate on rising. The quantity of meat was limited to one small piece at the dinner hour only, milk, eggs, fish and fruit to be taken abundantly. A daily tepid bath was ordered, and plenty of water to drink. As a result, his patient has not experienced a single attack of migraine, even of the lightest character, for fifteen months.

Guaiac in Chronic Gout —

Garrod (*Medical Week*, July 6, 1896) says that after numerous observations during many years, among both hospital and private patients, on the use of guaiacum, both in the form of powder and as ammoniate tincture of guaiacum, he has been successful in establishing the following points with regard to the action of this substance.

It is innocuous, may be taken for an indefinite period of time, and should be looked upon as a condiment rather than as a drug—as harmless as ginger or any other spice.

It possesses considerable power, but less than colchicum, in

directly relieving patients suffering from gouty inflammation of any part, it may be given whenever there is but little fever

If taken in the intervals between gouty attacks it tends to avert their recurrence, being in fact a very powerful prophylactic

It does not appear to lose its prophylactic properties by long continued use

There are a few persons who cannot readily continue the use of guaiacum, for such there are other drugs the prophylactic action of which is in some respects similar—one of the most powerful, perhaps, of these being serpentry

The author has given serpentry successfully in gouty inflammation in elderly subjects, but has had less experience with it as a prophylactic

Salol in Diarrhea.—

M H Fussell (*Therapeutic Gazette*, August, 1896) says the best method of administering salol is in the following mixture

R Salol ..	.....	...	"	"	"	1 drachm.
Bismuth subnitrate	.....	...	"	"	"	2 drachms
Chalk mixture ..	.....	...	"	"	"	q s. ad 3 fluidounces.

M. S : Two drachms every one or two hours until relieved.

The reason for combining salol with the bismuth and chalk is that it has a better effect when mixed with somewhat inert powders than when given alone It is presumed also that the slight astrin gent action of the bismuth helps to tone up the relaxed intestine and also to relieve any irritation of the mucous membrane, and thus hasten the beneficial result

Diarrhea due to dietetic errors, and that which is common in adults and infants in summer, is well controlled by the administration of salol, bismuth, and chalk Opium is rarely necessary where salol is used, salol controls the abdominal pain equally as well, is perfectly safe, and has no bad after effects It is especially useful in the diarrhea of children, and, while it will not control attacks of dysentery, the fetor of the stools and the abdominal distress are greatly relieved by it In the diarrhea of typhoid fever it acts almost as a specific.

Some Therapeutic Uses of Guaiacol —

J M Anders (*Medical and Surgical Reporter*, August, 1896) says guaiacol is a valuable medicinal agent in typhoid fever and pneumonia It is an antipyretic when applied to the skin in proper amount

McCormick has applied guaiacol more than eight hundred

times in typhoid fever, with uniformly good results. He has occasionally observed chills, but they were not followed by increased fever nor increased weakness. The occurrence of rigors is, according to this observer, a certain indication that the dose has been too large.

Anders has used guaiacol in but two cases of typhoid fever. In one of these its application was attended by rigors, on the thirteenth and sixteenth days of the affection, followed by a rapid rise of temperature to a higher level than the previous maximum. Rosenthal, of Philadelphia, has observed a similar effect. Thayer has also reported marked chills from its use. Still other observers have noted a decided weakening effect when guaiacol was employed as an antithermic agent. But though guaiacol does not possess the obvious and numerous advantages for the typhoid patient that the Brand method does, it may very properly be employed in cases in which the cold baths cannot be instituted.

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY P. NEWMAN, A. M., M. D.,

Professor of Clinical Gynecology in the College of Physicians and Surgeons, Chicago,
Professor of Gynecology in the Post-Graduate Medical School, etc

Effect of the Bicycle upon the Pelvis of the Growing Girl —

Much discussion is abroad upon this subject, and many supporters are found for both sides of the question. Only the future can determine whether the harmful effects of pressure by ill-fitting saddles is to be more than counterbalanced by the general systemic, muscular and nervous benefit derivable from the free out-of-door exercise and the improved modes of dress secured by the wonder-working wheel.

It has been said more than once that the bicycle has done more in the short time since its advent to emancipate woman from physical thralldom in matters of dress than the combined efforts of scientists, philanthropists and social reformers have been able to achieve in all the history of their crusades against the corset.

The following from the editorial columns of the *Boston Medical and Surgical Journal* serves to show the present status of the controversy.

"Dr. T. R. Evans, of Mt. Carbon, W. Va., writing in the *American Journal of Obstetrics*, draws a harrowing picture of the effects of the bicycle saddle upon the plastic pelvis of the growing girl. 'Walking,' he says, 'is necessary to the proper moulding of

the semi-cartilaginous bones of the girl's pelvis in reference to natural child bearing,' while a girl riding a bicycle makes a counter pressure of only four pounds against the weight of the head and trunk, balanced upon a too narrow and rigid surface. Dr Evans further says

'As in our climate the bicycle is used nine months in the year and as the modern girl walks less and less while more abundant nutrition both intellectual and animal, is supplied increasing the size of the fetal skull her prospects for instrumental delivery, symphysiotomy and celiotomy increase. It is yet too early to verify this prediction but for years the very large increase in the number of cases in which the forceps has been used by the masters in obstetrics demonstrates the evil effects of the lack of walking

"When nature increases the size of the fetal head it increases the capacity of the mother's pelvis, but such increase may be frustrated by art. Through laziness man is said to have worn his tail off by much sitting, and through the fashion of not walking, woman will add to the inconveniences if not the impossibilities, of natural labor. For centuries the horse has been utilized but the teachings of both anatomy and propriety have prohibited the woman from bestriding his soft back. The fact is that the straddling attitude is unnatural in man and only became popular through the chase and through war and surgical injuries are sufficiently common on account of such attitude. The parts traversing the male perineum are sensitive and important and lie superficially. But they are slightly protected from pressure by broad and comparatively long ischial tuberosities which are *near together*. In addition, the perineum of the male is moderately protected by hair. In the female perineum the tuberosities are smaller, sharper and *wider apart* and it is comparatively without hair. As shown by its tissue, physiology and function, the perineum of woman is a kind of *supplemental uterus*. It is padded with connective tissue prolonged pressure upon which must cause condensation and atrophy thus adding 'atrocious' pains to the second stage of labor and much liability to rupture

"Dr Evans calls attention to the fact that until after puberty the pelvic bones readily yield to mechanical influences, and thinks it probable that during this yielding period the narrow saddle will press the ischial tuberosities upward and inward, the distortion being greater the younger the girl thus adding a serious complication to the flattened pelvis, which is the most common pelvic deformity in Europe and America. He thinks that the slight forward inclination of the body while on the bicycle may tend to increase the pelvic flattening

"The difference, says Dr Evans, 'between the shape of the child's and the adult's pelvis is most largely due to pressure and counter pressure through living levers the body and lower extremities. This is well proven in the exaggerated development of the side of the pelvis used by a youth with one leg'

"Dr Evans, in concluding, expresses the opinion that the bicycle will predispose to placenta previa, the basis of the contention being that all the cases of placenta previa which he has seen have been in hard-working and active women

"While we must admit that the pressure of an improper saddle upon the pelvis of a growing girl might have a tendency to deform it, we cannot see that Dr Evans has advanced any cogent arguments against the use of the bicycle with a suitable saddle—that is, one which throws the weight of the body upon the ischial tuberosities and not on the perineum. The direct downward pressure upon the ischial tuberosities ought not to force them either inward or outward, and the vigorous play of the muscles in the exercise of riding ought to have a favoring instead of a retarding influence upon the development of the pelvis. On the other hand, too much can hardly be said against the use of improperly constructed bicycles by women whether growing or grown, and Dr Evans's contention that the bearing of the weight upon the perineum might tend to pull the ischial tuberosities inward is a sound one. It should not rank, however, as an argument against the use of the bicycle by growing girls, but rather as an additional reason why they should not ride on improperly constructed saddles. By the simple precaution of choosing a proper saddle, it is to be hoped that our growing girls may escape the instrumental deliveries, symphysiotomies and celiotomies which Dr Evans thinks are threatening them as a result of the pleasant and healthful exercise of bicycling."

Methods of Performing Symphysiotomy —

In a paper read before the Brooklyn Medical Society in April, and published in the *Medical Record* of September 12, 1896, Dr Edward A. Ayers of New York says three ways of performing symphysiotomy are now recognized: Morisani's, Pinard's, and the one which the author recently brought forward at the Academy of Medicine in New York.

Morisani's method of cutting down to the upper border of the pubis, then passing a curved Galbati knife down behind the joint and cutting from the base up and out, is not popular in this country, and should not be, being both anatomically and surgically objectionable. Pinard's operation, which consists in cutting down upon the face of the symphysis through the soft tissues and exposing the joint, is a great improvement over Morisani's, the chief objection to it lies in the cutting through the vessels of the clitoris, causing much hemorrhage, and in unnecessarily exposing the joint.

He has operated five times in the last eighteen months by a new method which he described in a paper before the Obstetric Section of the Academy of Medicine in January

Following are the essential points in the operation

- 1 Secure full dilatation of the cervix, if possible, without risk to the child, before cutting the symphysis
- 2 Make the initial incision a little above the subpubic arch and under the elevated clitoris
- 3 Have the urethra and bladder held to one side with a small male sound
- 4 Introduce the left index finger within the vagina against the posterior ridge of the joint up to the top
- 5 Pass a narrow tenotomy knife with the point close to the joint, up to within a half inch of the top, and under the overlying soft tissues, cutting the middle portion of the joint
- 6 Substitute a probe pointed bistoury and meet the left index finger with the probe over the top of the joint, and work the blade through the joint downward until separation is felt by the posterior finger
- 7 Have an assistant press the mouth of the wound and the tissues lying over the joint with a small piece of gauze
- 8 Deliver with the forceps if possible, and refrain from supra pubic pressure, aiming to deliver the head through the cervix without drawing it down below the symphysis
- 9 Hold the bladder well to one side while pressing the pubic bones together
- 10 Pass a small strip of gauze into the pre-pubic wound and another against the cervix after irrigating leaving both pieces exposed for easy removal, having refrained from stitching cervix or perineum
- 11 Dress the vulva with gauze, and strap the joint with adhesive strips
- 12 Remove all the gauze in thirty six hours, and irrigate the vulva and vagina twice a day, keeping the vulva carefully dressed between times
- 13 Attend to catheterization in person

A New Method of Treating Incomplete Abortion —

After stating that self induced abortion is frightfully common among the lower classes of the community, the same woman repeating the crime year after year Dr Anna M Stuart, of Elmira N Y, in the *New York Medical Journal* of September 26, 1896, details a

method of dealing with incomplete abortion which she considers rational, and ordinarily satisfactory for the first twelve hours. If successful, it is much easier both for physician and patient than the full dilatation of the cervical canal and the manual extraction of secundines with finger, curette, or placenta forceps. Moreover, it can be performed without disturbance in the household, without family assistants, and without anesthesia.

She always brings a medical friend, but the work can be done single-handed. The woman is placed crosswise on the bed (made as hard as possible), in dorsal position, on a Kelly cushion. The external parts and vagina are thoroughly washed with green soap and warm water, and the hair trimmed off. This is followed by an antiseptic vaginal douche. The bivalve speculum, freshly boiled, is inserted and opened, and the screws are set. The internal os is usually patulous enough to admit Bozeman's intra-uterine douche. Through this a hot creolin solution is allowed to flow, always watching to see that the return current continues free. Then all loose clots and debris are removed by the dull curette. The cavity is again washed, and this process is repeated until nothing remains but the firm decidual tissue, which clings to the uterine wall and could not be removed without much dilatation, causing much pain to the patient. The hot creolin solution is an excellent hemostatic, and is allowed to flow until it returns white. Finally, the uterus is packed from the fundus to the external os with iodoform gauze prepared by the physician, it contains more iodoform and more sterilized glycerin than the commercial article. The first gauze is withdrawn, thereby wiping out the cavity, and a second piece is firmly placed so as to stop all hemorrhage.

The patient will usually endure this treatment without a groan. She is now put back to bed and given quinine, strychnine, and sometimes repeated doses of ergot. If pains come, she is told to endure them, and no opiate is allowed. By this means the inert uterus is stimulated to contract. The blood, unable to escape, distends the cavity and flows in between the decidua and the uterine wall, dislodging the former. Finally, the internal os dilates, the gauze is expelled, and with it all the uterine contents.

Another creolin intra-uterine douche, and if endometritis exists the gentle use of the sharp curette and a gauze drain, complete the work. Contraction and involution of the uterus go on rapidly.

PEDIATRICS

UNDER THE CHARGE OF W S CHRISTOPHER M D

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Description of a Midget known as Princess Paulina —

Dr J D Nagel (*Pediatrics*, Oct 15, 1896) gives the following account of this diminutive person

She was born on the 26th of February, 1876, at Ossenrecht, Holland, the seventh child of a family of twelve Her father and mother, still living, are a robust couple, rather above the average height, as are also her six sisters and two brothers, all of whom are still living On the day of her birth she was said to have measured only 12 inches, at eighteen her height was 19 inches Her weight in normal health was from $7\frac{1}{2}$ to 9 lbs

The majority of midgets hitherto examined by medical men have been imperfectly formed, repulsive, or wanting in intelligence, but this tiniest of women was nearly perfect in bodily development, of rather pleasant features, graceful in all her motions, of a good general education, speaking four languages—her native Dutch, French, German, and a little English

Before being taken ill she was said to have been in perfectly good health and free from physical defects of every kind Her friends say she always had a good digestion, and the lady with whom she boarded confirmed this statement by saying that the little phenomenon ate her four meals a day

Paulina Musters began to menstruate at the age of sixteen, and from that time on regularly menstruated every twenty eight days, the period lasting three days, and the catamenia being normal in color and quantity She had all the characteristics of a fully developed woman The breasts were round and prominent, and the pubes and mons veneris covered with hair

Her last illness originated in a simple cold, contracted during one of her exhibitions Ever since her earliest childhood she had been in the habit of appearing in public at theatres, and reciting her various accomplishments and the history of her early life She would perform all sorts of acrobatic feats, such as walking on her tiny hands, balancing her body on one hand, dancing, and lifting weights heavier than her own body The salary she received for these performances enriched her family, though the innate vitality of her organism was naturally lowered by constant exposure

Her friends who were traveling with her sought to improve her energies and replenish her exhausted vitality by means of stimulants, which they administered to her after each performance. It was astonishing to see what quantities of alcoholic beverages this little midget could absorb. Her favorite beverage was champagne. It was only natural that as soon as serious illness attacked her, her heart should have become considerably weakened, both from the excitement of her profession and from the quantity of alcohol she was in the habit of taking. Her cold developed into bronchitis, the bronchitis into pneumonia, which subsequently was complicated with meningitis, and after a ten days' illness caused the death of the little woman. During her illness and before the development of meningitis she was perfectly rational, and though her temperature varied from 102° to 104° , she did not complain as long as her sister fondled her or held her in her arms like a little babe.

The determination of the dosage of medicines employed was a difficult question, for, though a fully developed woman, she was bodily of the stature of an infant. At first, mixtures which were customarily administered to children in these diseases were used, but subsequently they had to be increased in strength to the adult dose. She bravely fought death, and might eventually have recovered had it not been for her weakened heart, which did not respond to stimulation.

Dr Nagel made the following measurements after death, and publishes as part of his article a reproduction of the death mask and a cast of the hand. He states that the body became elongated after her illness and death. We confess we do not see how the body could have lengthened, but even the 24 inches assigned would still leave her one of the smallest of human beings.

Length of body, 24 inches, length of arm to tip of fingers, 12 inches, length of leg from hip to tip of toe, 12 inches, circumference of head, 16 inches, length from chin to forehead, $5\frac{1}{2}$ inches, length from chin to ear, $3\frac{1}{2}$ inches, circumference of chest across the breasts, $18\frac{1}{2}$ inches, higher up under the axilla, 19 inches, circumference of abdomen, 19 inches, around the hips, 18 inches, around the waist, 17 inches, length of foot, 4 inches, length of hand, $3\frac{1}{2}$ inches, from shoulder to shoulder in front, $7\frac{1}{2}$ inches, circumference of thigh, 7 inches, of knee, 6 inches, of calf, $4\frac{1}{2}$ inches.

Tetany Following Scarlatina —

J. B. McConnell reports (*Montreal Medical Journal*, September, 1896) the case of an Italian boy, five and one-half years of age,

whose symptoms came on twelve days after the onset of scarlet fever. The child's family was of neurotic tendency, and the previous history of the child indicated fair health, though mouth breathing, pharyngeal adenoids, and convulsions during dentition were noted.

Tetany, of the continuous-spasm type, was undoubtedly present. The fingers were stiff and extended, lying closely together, flexed at the metacarpo-phalangeal joints, the thumbs pressed in upon the middle and index fingers, hands flexed on arms, and elbows slightly flexed, shoulder not affected, but freely movable. The legs were also extended at the ankle, the toes pointing downwards and inwards, and toes flexed, resembling the position in talipes equino-varus, the ankles and wrists were swollen and tender, and the child gave evidence of intense suffering if an attempt was made to move them. The skin was slightly reddened over the joints, the condition resembling acute articular rheumatism. No other muscles were affected. The child cried at intervals from pains in the limbs, doubtless caused by muscular cramps; otherwise, unless moved, he appeared not to suffer. No abnormal condition could be discovered in any other part of the body. Temperature, 101°. The urine contained traces of albumin and excess of phosphates.

A Pecularity in the Shape of the Hands in Idiots of the 'Mongol' Type —

T. Telford Smith (*Pediatrics*, Oct. 1, 1896) sums up the physical characteristics of this type as follows:

They are undersized in stature. The face is broad, flat, and round, the eyes being as a rule obliquely placed, with a narrow palpebral fissure, the width between the internal canthi is generally greater than normal, and an epicanthic fold is often present. Tarsal ophthalmia is very common. The nose is small and rather flattened. The ears are small and badly shaped, the lobules adherent.

The mouth is generally open, and the lips are sometimes fissured and thick.

The tongue is characteristic and invariable—it is very rough, and is traversed by deep fissures, both conditions being due to the papillæ being markedly hypertrophied. The tongue is often long and pointed.

The palate varies, but generally it is rather higher than normal, this condition however, being exaggerated in appearance by the almost invariable thickening and hypertrophy of the gums all round.

the alveolar curve on the inner aspect The alveolar curve itself is, as a rule, fairly good, but the teeth are irregular and carious Both first and second dentitions are delayed

The skin is coarse, dry, and scaly, and the hair is dry, thin, and straight

The circulation is sluggish, and the temperature generally sub-normal In cold weather they show a tendency to chilblains and catarrhs Cold also depresses their mental powers

Their joints are remarkably lax Many of them show a peculiar fondness for squatting with the legs crossed under them, in oriental fashion

The general shape of their hands and feet is short and thick, with fingers and toes below the normal in length

The shape of the head is almost invariable it is markedly brachycephalic, the circumferential contour approaching a circle The plane of the face and the plane of the occiput tend to parallelism

The peculiarity in the shape of the hand to which the author calls attention consists in a marked outward bowing or curve of the little finger This curve occurs to a greater or less degree in nearly every case of Mongol idiocy he has examined, so that it may almost be looked upon as one of the constant peculiarities of this type The degree of the curve is not in proportion to the degree of idiocy of the case, it seems to vary in each

The paper is accompanied by a skiagraph and photographs These show that the second phalanx of the little finger is much shorter than normal, with marked lateral displacement of the terminal phalanx

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.

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The Differential Diagnosis of Uremia and Meningitis —

Arthur R. Edwards (*American Journal of the Medical Sciences*, August, 1896) reports four cases illustrating the rather unusual difficulty of distinguishing uremia from meningitis

Case 1 Woman, aged 40 years, delirious, pulse 90 to 120, fairly continuous temperature, ranging between 101.9° and 102.6°, tongue dry and coated brown, glazed pharynx, respirations 30, diffuse bilateral moist mucous râles, with signs of hypostasis over the

lateral lobes behind and at the base cause no sense of actual tone slightly accentuated arteries somewhat tortuous and rigid. Urine ammoniacal, 1.015 albuminous containing considerable pus and micrococci, yet no casts warranting a diagnosis of cystitis amount not obtainable on account of inflammatory excoriation. Divergent strabismus due to paralysis of the left internal rectus; paresis on the left side and right hemiplegic arm - a lesion of the upper motor trig. Paralysis present a day or two before death. Clinical diagnosis—meningitis and cystitis. Autopsy—examined the brain no meningitis no cerebral lesion other than softening of the brainstem with hypostasis diffuse parenchymatous degeneration of the brain hence uremia.

It may be remarked regarding this case and a similar one of softening in the left crus would account for the lower paralysis and hemiplegia, such softening being rendered entirely possible by the existing arterio-sclerosis and as no microscopic examination was made it could not be absolutely excluded.

Case 2, a woman aged 53 presented paralysis of the abdominal and oculo-motor nerves and of the lower limb on the right side. Her mind wandered and the urine showed abundant albumin and casts. A diagnosis of nephritis was made but some other lesion in addition to account for the paralysis. The patient died suddenly, and an examination of the brain was negative the conclusion being that the multiple nerve lesions were due to uremia.

Here again we must remark that there having been no careful microscopic examination absence of a lesion could not be positively asserted. As shown in a former abstract (MEDICINE December 1905) the region of the pons is peculiarly liable to punctate softening that may not be recognized by the naked eye.

Case 3 is particularly interesting from the absence of local and basal symptoms. Man, aged 40 years admitted to Cook County Hospital in delirium, without any history of arterial hypertension brachials atheromatous plaques on radials; pulse on ten regular quick no temperature left heart distinctly dilated apex left vertical nipple line strong and heaving the second aortic loud and metallic urine heavily loaded with albumin but no formed elements found. The diagnosis lies between uremia meningitis. No rigidity of neck no ear disease, no temperature, focal symptoms retina negative. Because of the cardio-vascular changes and albuminuria uremia was diagnosed. Autopsy marked universal arterio-sclerosis atheroma of aorta hypertrophy and dilatation of the left ventricle and to a less degree of the

kidneys and other viscera wholly negative, a diffuse purulent meningitis over base and convexity originating from an empyema of the sphenoid sinuses "

Case 4 shows almost conclusively that ocular paralyses may be due to uremia alone, as the ocular trouble in this instance was transitory, but it is true that such transitory affections of the eye muscles sometimes precede permanent paralysis due to organic disease "This case closely resembles delirium tremens, with history of recent and ancient alcoholic excesses Urine 1018, acid, much albumin, 1500 to 1800 cubic centimeters per diem, moderate number of hyaline, granular, and epithelial casts History of previous anasarca and ascites, left ventricle hypertrophied and dilated, pulse very tense, with appropriate sphygmographic tracings, headache, delirium, sopor, and vomiting, no convulsions, but two sudden lapses into coma, with temporary recovery neuro-retinitis hemorrhagica, suddenly a paralysis of the right and a paresis of the left rectus internus, lasting four days, causing diplopia, disappearing for three days, recurring with right ptosis Death Clinical diagnosis—secondary contracted kidney, cardiac hypertrophy and dilatation, edema of brain Autopsy confirmed clinical diagnosis, the cerebral edema was very pronounced There were no gross brain lesions "

Amaurotic Family Idiocy —

Under the above title, Sachs (*New York Medical Journal*, May 30, 1896) describes what he considers to be a new family disease, the principal traits of which are, in general, as follows A healthy child is born of healthy parents and develops normally for several months, then occurs an arrest of mental development, or marked mental deterioration, general weakness but no local paralysis, progressive amaurosis ending in blindness, and death from marasmus at about two years In a number of cases the blindness has been by far the most striking symptom, and these have been reported by ophthalmologists The classification is based on nineteen cases from personal observation and the literature, and the author tabulates the principal symptoms as follows

- 1 Mental impairment, observed during the first few months of life, and leading to absolute idiocy
- 2 A paresis or paralysis of the greater part of the body, this paralysis may be either flaccid or spastic
- 3 The reflexes may be deficient or increased
- 4 A diminution of vision, terminating in absolute blindness (changes in the retina, and, later on, optic-nerve atrophy)

5 Marasmus and a fatal termination, as a rule, about the age of two years

6 The occurrence of the affection in several members of the same family

He is able to report three autopsies, two by himself and one by Kingdon of Nottingham, the findings of which were in entire accord "The chief changes were restricted to the cells and possibly the white fibres, and there was every reason to believe that the absence of inflammatory changes with the abnormalities of cell structure was due to an arrest of development The condition as found in this first brain was defined as an agenesis corticalis pure and simple."

The author, we think rightly, excludes syphilis as entering into the etiology He also differentiates the affection from other congenital idiocy and from the family diplegias, although he admits a possible relationship with some varieties of the latter It may be worthy of note that the patients are all known to have been Hebrews, except the four cases reported by Tay and these may have been

It were perhaps premature to put these cases in a separate rubric as a well defined disease but they do seem as collected and presented by Sachs, to constitute a peculiar group and it is hoped that ophthalmologists, neurologists and the general practitioner will be on the lookout for additional instances or transition forms

LARYNGOLOGY AND OTOTOLOGY

UNDER THE CHARGE OF WILLIAM E. CASSELDERRY M D

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Laryngologist and Rhinologist to St. Luke's Hospital Laryngologist to

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Diseases of the Attic —

As remarked by Dr Dundas Grant in a discussion of Dr Bronner's paper (*Journal of Laryngology, Rhinology, and Otology*), June, 1896), to those upon whose attention the appearances characteristic of attic disease now force themselves so frequently it must seem very strange that reference to this malady in classical works on otology up to a recent date should be so meagre Doubtless the reason it is being so frequently recognized at present is the greater care with which it is sought for

Anatomically, the attic is that part of the cavity of the middle ear above and behind the main cavity in which is contained the head

of the malleus and the larger part of the incus. The superior part of the membrana tympani, known as Shrapnell's membrane, or the membrana flaccida, in contradistinction to the main portion of the membrana tympani, known as the membrana tensa, covers the lower part of the attic. Dr. Bronner says: "The attic plays a very important part in connection with the diseases of the ear. It is divided into several small cavities by the ligaments of the malleus and incus, and if inflammation has once spread into these cavities it rarely heals spontaneously, becomes chronic, and is most difficult to cure, which explains why the ossicles and the walls of the attic so frequently become affected. It is difficult to localize the exact seat of the disease, the position of the perforation, however, helps to some extent—if it is over the short process of the malleus, then the head of the malleus is affected, if behind the short process, the long process of the incus is affected, whereas, if the walls of the attic are themselves diseased, there will be a large perforation in the upper part of Shrapnell's membrane. In all cases of perforation of the pars tensa or lower part of the membrana tympani, in which the usual treatment has failed to effect a cure in a few months, we can be reasonably certain that the attic is diseased, especially in adults, and perhaps also the mastoid cells with which the attic intimately communicates. This is the reason why Schwartz's original operation upon the mastoid is sometimes unsuccessful, because one does not lay open and treat the diseased attic at the same time, and thus afterwards keeps up purulent discharge."

Concerning the symptoms of attic disease, we usually find perforation of Shrapnell's membrane with or without granulations. If there is a fistula of Shrapnell's membrane, the attic is sure to be diseased. In addition we may find cholesteatoma or caries of the ossicles, or of the wall of the attic. Granulation tissue projecting through the perforation may attain large dimensions. But there may also be disease of the attic without perforation of the membrana tympani. The patient complains of pain in or above the ear, of a feeling of fullness, not always of deafness. There is redness and slight bulging of Shrapnell's membrane, or of the upper part of the external meatus. In such cases the author has incised, found caseous matter, scraped out, and syringed, with excellent results.

Treatment should be guided by ordinary surgical principles: enlarge the perforation, excising part of the membrana tympani, if necessary, remove any granulations, caseous matter, etc., by the curette and by syringing, apply iodoform, and take care that the perforation is kept well open. If the malleus and incus are diseased

and loose, they can be easily removed, but if they are firmly attached or difficult to find it is best to wait a while until they become loose and more easy to remove, the great risk of damaging the stapes or facial or semicircular canals is not then incurred. Milligan's irrigator is the best for syringing out the attic and Delstanche's new curette for removing the malleus. The latter is a most simple and useful instrument. In thirty cases out of forty two in the hands of Bronner, this line of treatment has succeeded in effecting a cure. In the other cases more vigorous treatment was necessary—in two, removal of the ossicles under chloroform in ten, opening up of the attic by external operation.

The after treatment of the combined mastoid and attic external operation is often very tedious. The outside wound must generally be kept open for a month or two, and sometimes results in a permanent fistula. To avoid this, in a few recent cases the author has adopted the method of incising the external meatus and forming a flap or flaps, thus producing a very large external meatus—in other words, throwing the meatus and the wound into one passage-way through which a good view and instrumental manipulation of the suppurating surface might subsequently be obtained until healing was complete.

Chronic Tympanic Vertigo —

Charles H. Burnett (*Philadelphia Polydnic*) says that chronic tympanic vertigo, paroxysmal in its occurrence is one of the late symptoms of chronic catarrhal otitis media. It is always observed in company with tinnitus and deafness, is late in appearing, being preceded generally for several years by tinnitus first and then increasing dullness of hearing. However, in the majority of cases of chronic catarrh of the middle ear, tympanic vertigo never occurs, but when it does show itself markedly it becomes almost an independent disease, leading the patient to seek relief particularly for the vertigo, nausea, vomiting, reeling and falling, which sooner or later ensue in the order named. The affection is commonly mistaken for Ménière's disease, an affection of the internal ear, or it may be diagnosed as "biliousness," cerebellar disease, or even epilepsy. When the cause of ear vertigo lies in a lesion of the internal ear, the labyrinth, it may then and only then be termed Ménière's disease. In cerebellar disease the tendency to vertigo is generally constant, not paroxysmal, and the gait is permanently changed.

Tympanic vertigo is caused by retraction of the membrana tympani and chain of ossicles, leading to impaction of the stapes in

the oval window, thus compressing the labyrinthian fluid. The natural point of yielding to this compression is the round-window membrane, but this, being also thickened and stiffened by the catarrhal process in the drum cavity, fails to yield, and vertigo results.

[It is thus seen that the last cause of what the author describes as tympanic vertigo is compression of the fluid of the labyrinth, but in tympanic vertigo so-called the original lesion which leads up to alteration of tension in the labyrinth is located in the middle ear, and it is sought to limit Ménière's disease or symptoms to primary labyrinthine conditions. This is a valuable distinction, for it has to do with the possibility of remedying the form called tympanic vertigo by operative measures.]

The author has relieved chronic tympanic vertigo by total excision of the membrana and the malleus, the incus being allowed to remain in position, but he has abandoned this operation in favor of simple incision in the membrana and removal of the incus, which liberates the stapes most completely and is never followed by reaction of any moment.

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF WM L. BAUM, M.D.,

Professor of Dermatology and Syphilology in the Post-Graduate Medical School, Chicago,
Fellow of the Chicago Academy of Medicine

A Promising Treatment for Leprosy —

Dr H. R. Crocker writes on this subject in the *Lancet*, August 8, 1896, and reports two cases.

Case 1 — The patient was 36 years of age and came under observation in March, 1895. She was suspected of being a leper, and was put in quarantine for observation by the authorities. Suspicion that the symptoms might be due to syphilis having arisen, injections of perchloride of mercury were given, with such marked improvement that the diagnosis of syphilis was confirmed and she was released and immediately came to this country. The practitioner who sent her to Dr Crocker was aware that the disease was leprosy. As Dr Crocker could find no symptoms of syphilis, the rapid improvement in quarantine suggested that the mercurial injections had a beneficial effect on the symptoms of leprosy, and he resolved to continue them. The date of onset of the patient's disease is not quite certain, except that she had indubitable symptoms in September, 1892, and there was a history of ill-health as far back as 1887. The face as a whole was of a pale mahogany tint, puffiness and swelling were most marked over the right orbit only, both lips were moderately swollen, both orbital ridges were moderately swollen, the left the most, there was a large pea-sized nodule on the right side of the chin, and a small one to the right of the tip of the tongue. The ears were normal. There were some scars on the

left wrist. There was partial anesthesia on the ulnar border of the back of the right forearm and on some of the scars on both wrist and forearms but no other anesthetic areas. There were numerous orange-colored stains on the limbs and on the back of the trunk, these marked the site of former erythematous patches, slight infiltration having been left in places most marked on the buttocks. There were no pains and no sweatings only great languor. No visceral complications. There was some tenderness of the left ulnar nerve above but not at the elbow.

The perchloride-of mercury injections one fifth of a grain were commenced April 19 and a month later it was noted that the infiltration of the hands and face was distinctly less the injections were therefore continued regularly once a week. In September a marked improvement was observed the face being much less swollen and discolored so that the appearance of the patient would scarcely attract attention. The puffiness of the hands was also gone, and the discoloration diminished. Except for the stains on the body no one would be likely to recognize the nature of her disease. At first she continued to take chaulmoogra oil, but she could never get beyond 25 minims and could not take it for any length of time having to discard it altogether and then begin with small doses again, latterly it had been given up.

Case 2—This patient was an artisan missionary aged 37 years sent to Dr Crocker by a professional friend. He had been working in the Zambezi district of Africa for ten years a very malarial region and had suffered from attacks of ague. The leprosy was of two years' duration, and its onset had been abrupt a copious and general erythematous eruption having come out suddenly and increased till nearly the whole body surface was a uniform red color. Next were noticed great pains in the feet, especially along the outer borders then a "pins and needles" sensation in the hands especially on the radial side. He was extremely drowsy, profuse sweatings developed but these soon ceased on the hands and feet, which became dry. Patient came to England in July 1895 and did not think he had been any worse since. Dr Crocker saw him on January 3 1896 for the first time when his condition was as follows. The whole body and upper limbs were nearly uniformly covered with erythema and brown stains of old lesions, but there were some healthy areas about the clavicles. The hands were swollen and dusky brown, though due allowance must be made for sunburn they had the characteristic soft silky feel. The face was much infiltrated above the brows and cheeks, and there was a hard lump in the right cheek about an inch in diameter. There were a few nodules on the forehead and lips. The ear lobes were long and pendulous. On the feet the toes and borders of the feet were red and shiny, but the rest of the foot was only discolored. The nails were altered but not thickened or thinned. The left foot was rather worse than the right. With regard to sensory disturbance the sense of pain was abolished along each ulnar border but tactile sensation was not affected on the feet sensation was diminished to pain but unaltered as regards touch. He was admitted into University College Hospital on January 12 1896 and the treatment by injection was commenced on February 3 with one injection of one-fifth of a grain of perchloride of mercury per week, and after three weeks this was increased to two injections per week. These gave no inconvenience beyond some induration and transitory tenderness at the point of injection which was made alternately in each buttock. He has now had forty five injections, and improvement has continued not only in the face but

the oval window, thus compressing the labyrinthian fluid. The natural point of yielding to this compression is the round-window membrane, but this, being also thickened and stiffened by the catarrhal process in the drum cavity, fails to yield, and vertigo results.

[It is thus seen that the last cause of what the author describes as tympanic vertigo is compression of the fluid of the labyrinth, but in tympanic vertigo so-called the original lesion which leads up to alteration of tension in the labyrinth is located in the middle ear, and it is sought to limit Ménière's disease or symptoms to primary labyrinthine conditions. This is a valuable distinction, for it has to do with the possibility of remedying the form called tympanic vertigo by operative measures.]

The author has relieved chronic tympanic vertigo by total excision of the membrana and the malleus, the incus being allowed to remain in position, but he has abandoned this operation in favor of simple incision in the membrana and removal of the incus, which liberates the stapes most completely and is never followed by reaction of any moment.

DERMATOLOGY AND SYPHILOLOGY

UNDER THE CHARGE OF WM. L. BAUM, M.D.,

Professor of Dermatology and Syphilology in the Post-Graduate Medical School, Chicago,
Fellow of the Chicago Academy of Medicine

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in other parts of the body. The hands, which were swollen and puffy, are much diminished in size, and the distended skin is thin and wrinkled. The erythematous condition of the body has also disappeared, together with the thickening it produced, and there is only yellowish and brownish discoloration. The pains down the legs and in the feet have much diminished, though he still feels some pain along the outer border of the foot at times.

Malignant Syphilis —

At the Third International Congress of Dermatology (*Universal Medical Journal*, September, 1896) Professor Haslund of Copenhagen opened a discussion on the above subject. He said the term "malignant syphilis" had been somewhat loosely used, but he would apply it only to cases in which extensive ulceration appeared not long after infection. The name should never be used in cases where there was widespread tertiary ulceration, severe symptoms might be present in these cases, but they were not those of malignant syphilis. So far as the primary sore is concerned, there is very little to note, and certainly extra-genital sores are not specially prone to be followed by it. Professor Haslund has never seen it occur later than the first year after infection. Prognosis is comparatively favorable, and the disease, even without treatment, tends to a spontaneous cure. Of the cases under his care occurring in males, more than two-thirds lasted less than two months. As to frequency, among 8691 cases of syphilis treated in the Copenhagen Municipal Hospital during fourteen years, malignant syphilis had been observed thirty-nine times, and with equal frequency in men and women. It is difficult to ascribe it to any particular cause. It is certainly not in the virus, as cases of malignant syphilis do not give rise to malignant syphilis. It has been attributed to general weakness, but it has been observed in persons otherwise strong. Professor Haslund is inclined to think it is liable to occur in families whose ancestors have been but little affected with syphilis, so that there is little power of resistance against the disease. As to treatment, mercury should not be given until the temperature is normal, and the patients should have tonics and general hygienic treatment.

Lupus —

Professor Lang (*Universal Medical Journal*, August, 1896) tenaciously holds to the excision method of dealing with this disease. The difficulty, he affirms, lies only in the situation of the operation at the orifices of canals where skin and mucous membrane meet, such as the mouth, nose, ear, genitals, or anus. He calls attention to the necessity of decorticating the ear to protect the

cartilage from the progressive erosion that accompanies the disease. In such cases a double operation is necessary—first, the removal of all trace of the disease, and secondly, a plastic or cosmetic operation to restore the original appearance. This was well illustrated in one case where repeated defacement of one cheek involving the nose, and lip below, with dacryocystitis above, had been ingeniously restored by plastic operations.

GENITO-URINARY DISEASES

UNDER THE CHARGE OF C. FRANK LYDSTON, M.D.

Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Chicago College of Physicians and Surgeons

Five Cases of Rupture of the Urethra Treated by External Urethrotomy and Suture —

In the *Boston Medical and Surgical Journal* July 16, 1896, Dr A. T. Cabot reports five cases of rupture of the urethra treated by external urethrotomy and suture. The cases are as follows:

Case 1—J. C.—aged 18 fell astride of a barrel twenty six hours before entrance to the hospital August 28 1891. Urination was impossible and an attempt to pass a catheter had failed.

Under ether a perineal section was immediately done. The bulbous portion of the urethra was so crushed as to be divided across two-thirds of its extent so that only a narrow strip of the roof of the canal remained intact. This rent in the urethra was closed by four catgut stitches so taken as to include the muscular and cavernous tissues surrounding the urethra but not encroaching upon the mucous membrane. When these were tied the canal was so restored that a catheter slipped in with perfect ease and was fastened in place and the outer part of the wound was left open so that in case of any leakage the urine would not be shut up within the tissues. Recovery was uneventful. The catheter was removed upon the tenth day and the patient left the hospital well at the end of twenty days.

For two years this patient had intermittent treatment with sounds and bougies, in accordance with advice given him at the hospital. A No. 27 French bougie was the largest size passed in this time. He was seen and examined on March 10 1896, when he told Cabot that he had not had an instrument passed for three years. The urine was clear and passed in a good stream. Sounds Nos. 26 and 28, French passed without resistance and caused no bleeding.

Case 2—P.—aged 23 entered the Massachusetts General Hospital October 17 1891. Twenty four hours before entrance he had fallen astride a pail which caused a sharp hemorrhage from the urethra. He was unable to pass water and his physician could not introduce a catheter.

Operation was done immediately upon entrance. While etherization was in progress there was a sharp hemorrhage from the urethra, which was restrained by pressure in the perineum. The perineum was occupied by a large clot of blood. Upon cutting into this and turning it out, the two ends of the urethra, completely separated, were found in the cavity. The ends of the canal were joined by six catgut stitches, and upon tying these the hemorrhage, which had been persistent and troublesome, was entirely stopped. A catheter slipped in easily and was left in place.

The patient proved unruly, and on several occasions removed the catheter. Presently a small abscess formed in the perineum which required opening. After this all went well, and he was discharged November 17, thirty-one days after operation.

Case 3—J. J. G.—, aged 31, entered the hospital July 2, 1892. He had fallen astride a joist forty-three hours before entrance. This was followed by hemorrhage from the urethra and the formation of a large hematoma in the perineum, and the patient was unable to pass water, nor could a catheter be introduced.

At the time of admission to hospital the bladder reached to the umbilicus. This distention was relieved by aspiration, and as soon as arrangements could be made operation was done. Upon cutting into the perineum by the median line, a blood-clot about the size of an orange was found and turned out. In this case there was complete separation of the urethra, and it was somewhat difficult to find the proximal end, but when it was found the two portions of the urethra were easily united by catgut stitches and a catheter put in place. The patient made a good recovery, and went home twenty-three days after the operation.

Case 4—J. D. P.—, aged 21, entered the hospital June 29, 1893. In jumping off a bicycle he had struck his perineum on the rear wheel with so much force as to break the wheel. This caused ecchymosis in the perineum, hemorrhage from the urethra, and inability to pass water. A large silver catheter was passed by his attendant, under ether, and the bladder washed with boric acid.

The following day swelling and pain in the perineum had increased, and he had a chill. He was operated upon by an incision in the median line, and the clotted blood lying about the urethra was turned out. The rupture was found extending transversely across the bulb, completely separating the two parts. The ends of the urethra were united by catgut stitches, and these at once stopped the hemorrhage, which had been troublesome. The patient for a few days was pretty sick, with a tendency to suppression of urine, but after this was over he rapidly recovered. The catheter was out on the eleventh day, and he went home with the wound wholly healed on the nineteenth day.

In answer to a letter, this patient reported in February, 1894, that he had never had any trouble in urination, and the water was perfectly clear. On examination by sounds the large sizes were arrested at the seat of the rupture. After a No. 22 French sound had been passed through the stricture, it easily yielded up to a No. 25 French. One week later a No. 26 French was readily passed without any exercise of force, and later, still larger sizes were used.

Case 5 —C. F. M—, aged 22, entered the hospital October 21, 1893. He had fallen astride a chair five days previously since which time he had been constantly troubled with hemorrhage from the urethra especially at the time of urination with a tendency to swelling in the perineum.

A perineal section was done. Clots lying about the urethra were turned out and it was found that the lower part of the urethra was torn across the roof of the canal being the only part intact. The ends were joined by catgut stitches and a catheter was introduced and left in place. The catheter was removed on the tenth day, and the wound was entirely closed on the twentieth day.

The patient returned for a time to the out patient department for the passage of sounds. One month after his discharge from the hospital an instrument of No. 30 French calibre passed easily. This patient was seen again February 11 1896. At this time a No. 30 French sound passed with ease through the whole canal although he had had nothing passed since 1893.

In all of these cases the immediate result was good. In three of them the opportunity was given for an examination some years after any dilating instruments had been used. In Cases 1 and 5 no stricture was found, and instruments as large or larger than any used after the operation slipped past the point of rupture with perfect ease. In Case 4, while no interference with urination was noticed, a narrowing of the urethra was found. This narrow point was, however, not a hard cicatricial stricture, but was so soft and yielding that without the least exercise of force it was rapidly dilated to a good size.

These results would certainly encourage a continuation of the attempt to promote immediate union of the urethra when divided by violence.

The operation is not a difficult one. A median incision opens the blood cavity about the urethra. After the clots have been turned out, a sound passed down the urethra quickly shows us the anterior end. If the urethra is not fully divided across the rent is then easily seen and rapidly repaired. When the division has been complete, the posterior end may not be so easily found, but in a fresh rupture the profuse bleeding which occurs from the bulb of the urethra, instead of obscuring our search, serves as a guide to that which we are seeking. If then the bleeding point in the posterior part of the wound is seized with forceps and pulled forward, the collapsed and retracted end of the urethra will be brought to view. In a case of longer standing, when the bleeding has stopped the search may be more difficult, in which event firm pressure should be made above the pubes to force the escape of urine to serve as a guide.

gut stitches, which were all placed before any of them were tied. Care was taken to include only the cavernous and muscular tissue in the stitches and not to encroach on the mucous membrane. In every case, upon tying the stitches, the hemorrhage immediately stopped.

The writer concludes that

In cases of ruptured urethra, immediate perineal section with suture of the urethra should be practiced.

By this procedure, not only do we greatly lessen the danger of urinary infiltration and abscess, but we also, in a large proportion of cases, may hope to prevent the formation of close intractable strictures.

In an early operation the search for the posterior end of the urethra is much easier than it is later. The hemorrhage from the branches of the artery of the bulb serves as a guide to that end of the canal.

Obstinate Chancre of Lower Lip —

Dr J W Montgomery, in the *American Medico-Surgical Bulletin* of August 1, 1896, reports a case of obstinate chancre of the lower lip. On January 11, 1895, a washerwoman, 52 years of age, consulted the author for a painful ulceration on the left side of the lower lip, which she said began three weeks before as a small pimple. The ulcer was very large, and invested particularly the exposed portion of the mucous covering of the lip, its floor was covered by a dirty gray mass, and the lower outer edge was dark red, rolled, and overhanging. There was no particular induration. The lymphatic gland under the left ramus of the lower jaw was so swollen as to plainly alter the contour of that part of the face.

The patient had been sent to the clinic as a case of cancer, but the rapid growth of the ulcer, the very great enlargement of the neighboring lymphatic gland, the general appearance of the lesion, especially its huge, dark-red, overhanging, rolled edge, and its lack of marked induration, all pointed to chancre, and not to cancer. Absence of induration in a hard chancre would seem to be a point of doubtful diagnostic value, but it is a fact, nevertheless, that pronounced induration is very rarely present in chancre of the lip.

The necessity of treatment was urgent, in the first place to make the diagnosis, and in the second to allay the great pain. She was therefore ordered to keep mercurial ointment, spread on linen, constantly applied to the sore, and to take one pill of protoiodide of mercury (one-fifth of a gram) after each meal, three times a day.

Four days afterward the pain was somewhat relieved, but the ulcer had not changed, and the lymphatic gland was larger. Four pills a day were then ordered. On June 25 after fourteen days of treatment, during ten of which she had taken five protochloride of mercury pills a day, and had kept the mercurial ointment constantly applied to the sore, the lesion had grown larger instead of smaller, and its edges were higher, but its floor was cleaner. The same treatment was continued. The dose of the protochloride of mercury was not increased beyond five pills a day for fear of causing a mercurial stomatitis, which would have complicated matters most disagreeably. The danger of stomatitis was imminent because of the patient's bad teeth and also from the impossibility of clearing the mouth by a good sized piece of lint was cut out of the finger for transillumination examination and found to be composed of epithelial degeneration tissue simply. There was no evidence of any systemic infection and the absence of fever was of significance. An oral syringe was used for irrigation of the mouth several times daily. The patient continued to take five pills of protochloride of mercury daily and the ulcer continued to grow larger. On July 10 the patient was given a course of five pills of potassium iodide daily for seven days. This did not seem to have any effect on the ulcer.

[illegible]

The first part of the document is a list of names and their corresponding addresses. The names are written in a cursive script, and the addresses are written in a more formal, printed script. The list is organized into two columns, with names on the left and addresses on the right.

scalp and face She said that the ulcer on the lip had healed about the middle of August Since September she has frequently come to the clinic on account of mucous patches in the mouth, and once for a papular syphilide of the neck

It may be added that all attempts to discover the source of contagion were fruitless

FORENSIC MEDICINE

UNDER THE CHARGE OF M D EWELL, M D, LL D,
Dean of the Kent College of Law, Chicago

A German Legal Opinion as to the Administration of Alcohol —

The August 29 issue of the *Journal of the American Medical Association* gives the following account of a decision by the highest criminal court of the city and district of Magdeburg, Germany

The defendant, Dr Hirschfeld, treated a case of serous inflammation of the cellular tissue of the arm which resulted in septicæmia and death, without any spirit or supporting wines When the case became serious it was sent to the hospital, and death followed Dr Boehm, a member of the medical council and hospital, accused Dr Hirschfeld of neglect of proper treatment in keeping the patient on what he called "a cold liquid diet," rather than the strongest wines and most nourishing foods The court charge was acceleration of death, or homicide by negligence, in not using spirits freely Dr Hirschfeld was permitted to present a scientific defense of his treatment of the case He asserted that in his long experience he had never used any form of alcohol He considered it very mischievous, and that it never added strength, but always detracted from the power and vigor of the case A series of statements were offered by Professor Bius of Bonn, Professor Strumpell of Erlangen, Professor Harnack of Halle, Dr Smithe, President of the German Medical Society, also the Medical Council of Saxony, consisting of five physicians with the president, all confirming the following general facts "The idea that alcohol gives strength is deceptive while any form of alcohol may produce an apparent form of stimulation, there is always a reaction in a profoundly marked diminution of energy The special paralyzing action of alcohol on the brain and spinal cord is no longer a theory, but a fact that can be measured and proved We are confident that experience will fully sustain our belief that no single human life, which would have fallen a prey to death without alcohol, has ever been saved by alcohol "

These general facts were supported by voluminous statements

and clinical experience. The court adjourned twice in order to secure a great variety of authoritative opinions and Dr Boehm, the prosecutor, seemed to rely on the statement of text book authorities, finally the following discussion was presented by the court. After stating the legal aspect, the judge remarked

It appears from the authorities offered that in regard to the diet of fever patients strong soups and wines have in a comparatively recent period been abandoned as increasing the fever. Professor Bins has reported an instance where the medical man was arrested for treating a case of fever with alcohol alone. It is clear that opinions in regard to the value of alcohol have materially changed inasmuch as its stimulating effect on the heart is regarded by many as valuable and some maintain that it is always capable of lowering the temperature. Notwithstanding among the most eminent practitioners at the present day there is a large number of opponents of this remedy. Some declare with emphasis that they have better success in their hospital and private practice without the use of a drop of alcohol than otherwise. It appears quite certain that alcohol in large doses exerts a paralyzing influence increases the decomposition of albumin in the organism and is thus capable of influencing the course of the disease unfavorably. Therefore without giving any definite judgment on this difficult question we shall adhere to the principle that it is entirely inadmissible to lay down any limits to the exercise of the individual judgment of the physician in such matters.

The defendant was accordingly acquitted. It would appear that considerable personal feeling was combined with this case, and a strong disposition exists to hold prominent medical men responsible for any new innovations of treatment where alcohol is supposed to be the remedy. It is also noteworthy that the opponents to the use of alcohol as a remedy are very formidable in culture and scientific reputation, and defend their theories with great emphasis and spirit. This case is also of great interest from the eminence of the parties in the contest, both of them being teachers of medicine and eminent practitioners. It would appear that no question of this nature could ever come into court in this country because the use of alcohol therapeutically is becoming more and more unsettled every year, and while there is only an occasional paper in the medical journals relating to this question there is a widespread distrust and skepticism of the value of alcohol as a medicine.

Commendable Testimony in a Malpractice Trial —

The *New York Medical Journal* of September 5, 1896 comments editorially on a case described in the *Wiener Klinische Rundschau* of August 10, 1896.

"It appears that the physician against whom the action was brought had been called to attend a woman in childbirth and had

undertaken some operation which he considered necessary, but had found himself obliged to leave it unfinished and send the patient into a hospital. There an operation was performed, and the woman died on the following day. At the post-mortem examination a laceration of the internal organs was found, also a foul canal, and it was concluded that the injuries had been inflicted with the forceps. In the complaint the physician was charged with having displayed lack of skill in the operation.

"Two expressions of opinion, says the account, were of noteworthy weight in the case. On the strength of Professor Von Hofmann's necropsy, the judge held it to have been shown that the woman's injuries must have been inflicted before she entered the hospital, and that the physician's operative procedure was not in accordance with the rules of the obstetric art. Professor Schauta gave expert testimony as follows: 'The first question is that of whether the operation was indicated, and to that I must answer yes. In this case I should have done the same thing myself, it accords perfectly with the rules of obstetrics. This I must maintain here in direct opposition to Professor Von Hofmann's opinion. The woman's physician, to be sure, inflicted the injury with his instrument. But now comes the question, Is that pardonable or not? As to that, I must say that apparently the instrument deviated from its position in consequence of some slight movement on the part of the patient. The circumstances of private practice in such a case are peculiarly embarrassing. In hospital practice we anesthetize the patient, and she lies perfectly still. In this instance, however, there was no assistance but that of the midwife. I may remark that all of us, from the first to the least, are often so situated as to have to say with regard to mishaps. Something has happened that might have been avoided. There are disastrous occurrences that are due to the extraordinary difficulties of obstetrics. The present case was one of misadventure, and surely it is not to be attributed to the physician's negligence or ignorance.' "

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints, or, if they so elect, an honorarium will be paid for original communications.

Books for review, exchanges, and all matters relating to the editorial management should be addressed to Harold N. Moyer, M.D., 103 State St., Chicago, Ill.

All communications relating to the business management of MEDICINE should be addressed to Geo. S. Davis, Publisher, Detroit, Mich.

MEDICINE

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No 12

ORIGINAL ARTICLES

MILK-INSPECTION¹

BY DR. ADOLPH GEHRMANN

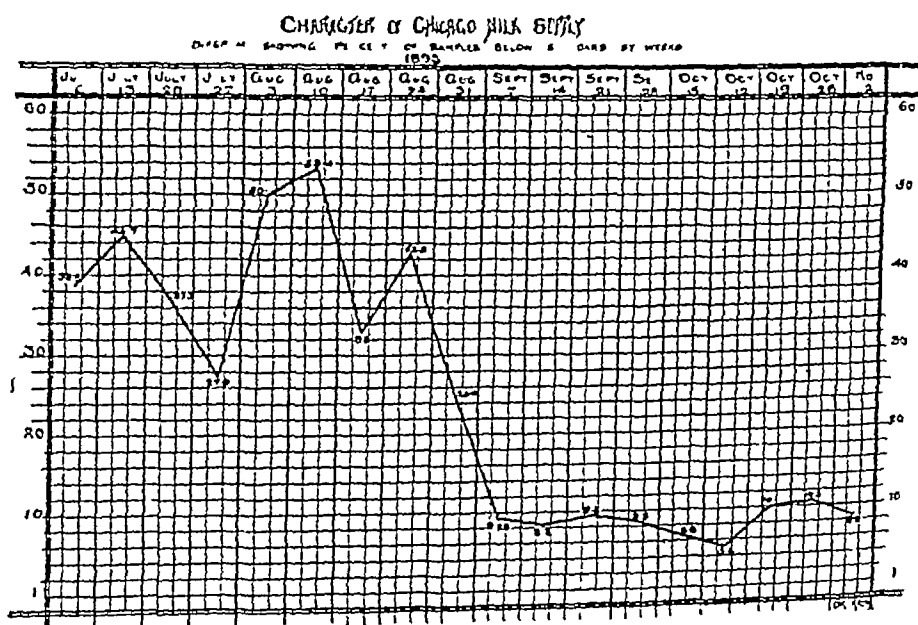
Director of the Laboratory of the Chicago Department of Health

Milk inspection must not be a farce. It must be conducted without regard to personality, associations or results to the persons whose property is inspected. That it is demanded in the interests of the general public, and especially the infant population, needs no explanation. Milk is probably the most easily sophisticated and adulterated food, while it is often the cause of disease-dissemination. Each day's milk supply is open to new dangers. To-day it may be of good quality, and to-morrow highly suspicious. It is necessary that inspection be a force operating continuously. The slightest relaxation will at once have its effect upon the character of a milk supply.

The questions involved in milk-inspection are those relating to the chemical composition of milk and those relating to its sanitary control. Any city or town having a properly framed milk ordinance can preserve the chemical quality of its milk supply beyond question. A milk ordinance should provide for license of dealers, standards of quality, and punishment for offense. The punishment by fine, and revocation of license in case of repeated offense is most effectual. Publication of offense in the daily press is a provision in some ordinances, and is a good provision, as dishonest dealers fear publicity even more than fines. That a city is able to regulate the quality of its milk, is shown by the chart of the milk supply of Chicago. [See next page.]

¹ Read at the meeting of the Illinois State Board of Health Auxiliary Sanitary Association, Springfield, Ill., May 22-23, 1896.

When systematic prosecution upon the evidence of every sample not in accord with the standard of the ordinance, and publication of the names of the offenders in the papers, was commenced, the percentage of samples not of standard quality was reduced from 53.4 per cent to 8 per cent in one month. The methods necessary to maintain this quality of the supply in any locality are simple careful collection of the samples, with special identification of the person possessing the milk at the time, delivery of the samples to the chemist in person, analysis by the chemist, and immediate prosecution upon original records. The question of the skim-milk tag is an open one. It is embodied in most ordinances in this country. However, to me it seems a cloak to avoid inspection, because it is easy for dealers to keep the tag out of the customers' sight. A special license or registration for the sale of skim milk would be preferable to the tag. Finally, simple, straightforward, persistent methods are the only way of regulating the milk supply.



The sanitary questions in milk-inspection are widely diverse and require experts in several directions. The health and breed of the cows, their food and water, the milking and the milkers, the care of utensils and the milk after being drawn, the transportation and storage of the supply, are all to be considered. In view of the fact that dairies are distant from town, and dairymen not within the jurisdiction of the town authorities, some larger authority than a town council must make the regulations and assume control of this

part of the work. Inspection of farms by city officers is difficult, and the prosecution of farmers in the country is worse than useless, as the juries selected are always favorable to country interests.

The State authority alone can regulate the sanitary part of the inspection. Every fact demands this of the State. So large a proportion of our population is in the cities and towns that every possible means of preserving their health should be instituted. There are also some benefits to accrue to the farmer from the efficient administration of a proper milk inspection law. His supply of milk would be better, and he would consequently have a more ready market for it, his loss from soured milk would be nothing, and his purchase of cattle with the aid of inspections would give him better stock.

SAMPLES OF MILK COLLECTED AND RESULTS OF ANALYSIS AND OTHER MILK STATISTICS OF THE LABORATORY OF THE DEPARTMENT OF HEALTH FOR 1896

SUBJECT	January	February	March	April	May	June	July	August	September	October
Collected by milk inspectors.	2079	1591	1672	1543	1450	1181	1604	1481	1402	2024
Brought to office	495	372	602	426	341	225	367	218	255	319
Number of samples tagged										
Skimmed Milk	23	386	626	207	190	136	191	191	165	350
Number of samples of milk not tagged "Skimmed Milk" and therefore sold for whole milk	802	652	517	669	638	493	710	641	550	818
Of these number below grade	74	7	61	47	49	66	72	46	44	54
Number of samples of cream	295	546	529	658	635	546	703	649	58	843
Cream below grade	45	37	27	7	11	19	13	13	24	91
Number of samples of cream colored										
Number of samples of milk watered	3	7	1	0	0	0	2	0	0	0
Number of milk licenses issued	5	3	1	0	0	0	1	0	3	0
Number of prosecutions for violation	104	84	119	---	1712	1063	4-8	284	95	58
Total number of samples of milk and cream	174	121	94	55	63	82	81	52	71	145
	2574	1956	2274	1969	1791	1415	1971	1699	1587	2343

Some authority like our State Board of Live Stock Commissioners should have the power and means of controlling the cattle and the dairies. Milk and tuberculosis can only be controlled by inspection of the cows. In my own experiments in microscopical examinations of city milk as delivered, I have had generally negative results. During 1893, some 2300 samples were examined for tubercle bacilli, and numerous bacilli were not found in a single sample. Dr H C Ernst, in fifty six examinations of the Boston milk supply for the Massachusetts Society for the Advancement of Agriculture, found tubercle bacilli in one instance. The labor

RESULTS OF EXAMINATION OF SPECIMENS FROM ELGIN ASYLUM CATTLE.

No of Cow	Specimens of Tissue Examined for Tuberculosis	Cultures from Specimens	Microscopic Examination of Milk for Bacillus Tuberculosis	Results of Injection of 2 cubic centimeters of Milk subcutaneously into Guinea-pigs, February 27, 1896
6438 7006 6764 7137	Sternum, tuberculous Glands, tuberculous .. Glands, tuberculous ..	Bacillus tuberculosis	Negative .. Negative .. Negative .. Negative ..	Post mortem negative Post-mortem negative Post-mortem negative Post-mortem negative
7088 6937	Lung, tuberculous .. Udder and inguinal glands, tuberculous		Negative ..	Post-mortem negative.
6557 6804			Few tubercle bacilli Negative .. Negative ..	Large swelling on side, bacillus tuberculosis Spleen, liver, lung and glands tubercular Negative Swelling at point of injection Few bacilli of tuberculosis found. Or gans normal
7044 6735 7045 6902	Glands from udder tuberculous ..		Negative .. Negative .. Negative .. Negative ..	Negative Died March 3 of acute suppuration Died in March (date not noted) No tuberculosis Liver and spleen showed numerous early tubercular areas
6588 6785	Glands from udder, tuberculous ..		Negative ..	Negative
6430 7007 6404			Negative Negative Negative .. Negative ..	Negative Negative Negative Small swelling at point of injection Tubercular areas in liver and spleen
6576			Negative ..	Small area in spleen and one in cortex of kidney Not tubercular

RESULTS OF EXAMINATION OF SPECIMENS FROM KANKAKEE ASYLUM CATTLE

No of Cow	Specimens of Tissue Examined for Tuberculosis	Cultures from Specimens	Microscopic Examination of Milk for Bacillus Tuberculosis	Results of Injection of 2 cubic centimeters of Milk subcutaneously into Guinea pigs, April 4, 1896
7354 8330 8433 7344	Glands, tuberculous	Bacillus tuberculosis	Negative .. Negative .. Negative .. Negative ..	Post mortem negative. Post mortem negative Post mortem negative Negative Local swelling at point of injection
7358 7669	Lung, tuberculous		Negative .. Negative ..	Negative Died April 31 Acute local abscess No tuberculosis
8147			Negative	Died April 13 Found a few bacilli of tuberculosis at point of injection
1908 8320 7615	Lung, tuberculous		Negative Negative .. Negative ..	Negative Negative Negative
8000	Mesenteric gland, tuberculous		Negative ..	Negative
	Liver, abscess		Negative ..	Negative
7647			Negative.	Small swelling at point of injection No bacilli of tuberculosis found
7372 8557 8991 7452	Glands, tuberculous		Negative Negative Negative .. Negative ..	Negative Negative. Negative Small swelling at point of injection Organs normal No bacilli of tuberculosis
7759			Negative ..	Bacillus tuberculosis found in swelling at point of injection Organs normal
7828 1929			Negative .. Negative ..	Negative Died April 19 Acute abscess Or gans normal No tuberculosis
7783			Negative	Several small spots in liver, not tubercular

required to make such examinations is also a serious objection. It is only rational to begin with the cows, and to remove and exclude animals having tuberculosis from the herds. The number of such diseased animals, as stated by authorities, varies from 10 up to 26 per cent. But it has been found that only a small percentage are in such a condition that tubercle bacilli can be demonstrated in the milk—by some experimenters the proportion has been found as low as 2 per cent, so that in a herd of forty or fifty cows, if three of them have tuberculosis, it is not probable that more than one will show tubercle bacilli in the milk. Now the farmer sends in his milk in large cans, and while the inspector collects a half pint of this and subjects two or three drachms to a microscopic examination, the amount of milk is so small and the contamination is so distributed through the whole that if the entire quantity could be put to the test there would perhaps be found upon the microscopic slide but two or three bacilli. So I believe that it is totally impossible to carry out any proper regulation of the milk trade under a system of mere microscopic investigation of milk for tubercle bacilli.

Another thing to be considered is the difficulty of tracing the milk back to the farm and to the cow that produced it. Therefore, apparently, the only rational way to regulate the matter thoroughly is to begin at the cow. This could be done through the Board of Live Stock Commissioners, which already has the authority to inspect cattle for tuberculosis, and in this State there has been a sufficient demonstration of the reliability of the tuberculin test in cattle.

I might here add a statement which Dr Trumbauer, if he could have been here would probably have made to you, of some late action of the Board on this subject. At the Kankakee Asylum 182 head were tested, and of these forty to forty five reacted to the test. At Elgin 41 per cent showed tuberculosis. These cattle were slaughtered, and the post mortem showed tuberculosis in every case. One or two only of these cattle were being fed for beef, the rest were used for the supply of milk.

In connection with this action by the Board, which illustrates the reliability of the tuberculin test, I also made some experiments to show relation of milk to the disease in these cases. In the Elgin herd, at the time of the slaughter, I obtained samples of the milk from eighteen cows, of which I injected two cubic centimeters under the skin of guinea pigs and from the Kankakee herd twenty samples were obtained from which likewise injections were made. At

the end of a month or six weeks the guinea-pigs were killed, for none had died from tuberculosis, although some had died from other causes. Of thirty-eight guinea-pigs injected with that milk, six cases of tuberculosis developed, but as five of the whole number had died before time for the development of the disease, the correct total would be thirty-three.

This demonstration simply shows the relation of the disease to the dairies, and that it constitutes one of the menaces to public health and requires regulation. Such regulation, I repeat, can be best made through the Board of Live Stock Commissioners.

Good food and good water are required to make good milk. Every dairyman should know the quality of water from his wells or springs. Typhoid fever must be excluded from dairy farms. Ensilage and wet malt or brewery grain food is good enough when fresh, but it cannot be made to remain fresh, and its use should be forbidden on this account. Before a committee of the State Senate, two years ago, the feeding of cattle throughout the State was discussed at great length, and an agent of the brewery association of Chicago, Peoria and several other places in the southern part of the State gave evidence there to the effect that the breweries were shipping from thirty to fifty car-loads of brewery refuse into the interior of the State each day, in various directions, and that this was being fed to cows kept for the special purpose of supplying milk for city and town consumption. At that time—that is, two years ago—almost all this brewery corn was taken to the country in a wet condition, just as it came from the brewery. This fact would be no serious objection while the material was perfectly fresh, but as soon as it has cooled it becomes infected with bacteria, and decomposition takes place very rapidly. It was frequently taken into the country by the car-load and left at a station, where the farmers from four to six miles around would gather and get the grain from the car, taking home a week's supply, and returning the following week for another load from the next car sent out. Frequently, according to the testimony, the farmer would dig a pit in the ground and unload the feed into the pit, and in very many instances it became black and rotten in a few days, often it would be in bad condition before it was taken from the car, and its condition in the pits, before it reached the cattle, would of course be much worse. This practice still continues, and such facts show the necessity of strict regulation.

Supervision of the health of the persons working on a dairy farm should be maintained. No one having tuberculosis should

milk cows, and milk from cows where contagious diseases exist should be temporarily withheld. Regulations and instructions as to the proper methods of cooling milk and cleaning utensils should be enforced. The milk agents on numerous railroads are doing much in this direction, as they desire that dealers remain customers of the farmers shipping milk over their railroads. The condemnation of old and leaking milk cans at present largely rests with these milk agents. Regulation of the sanitary condition of milk depots in cities must rest with local authorities.

Special regulations for control of bottled milk, sterilized milk, condensed milk, and milk foods, would be of advantage. Bottled milk is open to some objection, as usually delivered it is a menace to public health. I have found dealers filling the bottles before the door of customers from the same can from which they had just delivered milk in bulk, and sometimes the bottles were just collected from a neighbor's kitchen. The conscience of the milk dealer is not cultivated in sanitation. There are many firms, however, who do sterilize bottles before filling again. Condensed milk requires regulation, as deception is now practiced the removal of cream and condensation of the skimmed milk is a most frequent illegal practice.

A good milk supply means much to the people and to the children. The housewife can tell nothing about the quality of the milk being delivered to her. It may be skim milk colored to look rich and yellow, it may be preserved so that it is apparently fresh, it may come from a cow having tuberculosis, or may be delivered by a milkman whose child has scarlet fever. It is no wonder that milk inspection has been inaugurated in hundreds of towns during the past few years, and to me it is a surprise that so many cities and towns even of large size have not seen the necessity of protecting themselves. Beyond this the farming population require the protection they would get by a knowledge of the sanitary aspect of the milk question that is always acquired through inspection.

The following is the report of the injection experiments with milk from cows that were proven to have tuberculosis by tuberculin test and post mortem examinations.

Illinois State Board of Live Stock Commissioners

GENTLEMEN—The opportunity of making experiments with milk from cows where tuberculosis is positively demonstrated does not often present itself. In this instance it was especially sought to show the relation between the direct microscopical examination of the milk and injection experiments of the milk on animals. The wide variation between the results is shown in the

tables In only one specimen of milk was it possible to demonstrate the presence of the tubercle bacillus microscopically But in thirty-eight injections of the milk in animals we had the transmission of tuberculosis demonstrated six times

The specimens of milk were obtained from the cows after they were stunned and before being dressed About two ounces of milk was drawn, sometimes all from one part of the udder and sometimes from the different sections In some instances the udders were completely filled with milk The specimens of milk obtained were therefore not mixed samples and did not represent the real character of the milk from that individual cow On this account it is possible that a greater number of cases of infection might have been demonstrated could it have been possible to have had all of the milk from each cow and to have had it thoroughly mixed For the microscopic examination of the milk, the samples were centrifugated and the sediments collected This was treated with 2-per-cent carbolic acid solution and again centrifugated The sediment thus obtained was stained for the tubercle bacillus with carbol-fuchsin, and slides examined with the microscope Ten or fifteen minutes were spent in examining each slide, and three slides were made from each sample In one instance alone the tubercle bacillus was positively identified The injections of milk in the guinea-pigs were made with the fresh milk as obtained from the udder The amount used was two cubic centimeters, and the point of injection was behind the left shoulder in the subcutaneous tissue In all cases a local swelling resulted that persisted for a time In several instances suppuration occurred in the swelling and was the cause of the death of the animal

The animals that lived were killed at the end of five or six weeks The post-mortems showed six cases of tuberculosis, the other guinea-pigs were perfectly normal, except in one instance where there were a number of spots of fibrous degeneration in the liver and kidneys In four instances tubercle bacilli were found in the swelling at the point of injection, in the other two cases the swelling had almost entirely disappeared, nothing but a small scar remaining

The evidence is therefore clear that the tuberculosis found in the guinea pigs injected with milk did not occur from some other cause

ADOLPH GEHRMANN, M D

Health Department, Chicago, Ill , July 15, 1896

SUBCONJUNCTIVAL INJECTIONS IN THE TREATMENT OF CERTAIN DISEASES OF THE EYE ¹

BY WILLIAM H. WILDER, M.D.

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In the last few years a new therapeutic method has attracted the attention of oculists. It was first practiced in the clinic of Professor Reymond, of Turin, whose assistant Secondi published in 1891 satisfactory results obtained by its use. About the same time Darier, in the *Archives d'Ophthalmologie* (1891, p. 449), advocated the same method, and he has continued ever since to practice it and praise its efficacy.

This method consists in the injection beneath the conjunctiva of a minute quantity of corrosive sublimate or of cyanide of mercury in solution, with antiseptic precautions. The quantity used is two or three minims of a 1:1000 solution of either of these mercuric compounds, equivalent to about one twentieth of a milligramme of the drug. This is done after anesthetizing the eye with a 4 per cent solution of cocaine by introducing a sterilized hypodermic needle beneath the conjunctiva of the eyeball eight or ten millimeters away from the cornea.

This simple procedure is usually followed by some pain, more or less severe according to the condition of the eye at the time of the treatment. The presence of much inflammation makes the pain of the injection severe, notwithstanding the cocaine, while with conditions not accompanied by inflammatory changes the pain is easily borne.

This therapeutic measure has been adopted in a variety of diseases of the eye by Darier and others with a varying degree of success. For example, it has been used in the treatment of wounds of the eyeball, infectious ulcer of the cornea, with or without hypopyon, iritis of all kinds, irido-cyclitis, irido-choroiditis, hyalitis, retinitis, neuritis, optic nerve atrophy, sympathetic ophthalmia, and the obscure choroidal changes that so frequently occur in myopia. It has its advocates who commend it in certain diseased conditions of the eye and are striving to learn the indications for its use and the limits of its usefulness. Among this number may be counted Abadie, Deutschmann, Schnudt Rimpler, Darier, and Gepner. It

¹ Read at the meeting of the Mississippi Valley Medical Association, St. Paul, Minn., September, 1896.

has also its opponents, among whom are Mellinger, Muttermilch, and Gutman, who attack it on theoretical and experimental rather than on clinical grounds. They argue that as the amount of mercurial injected is so small, it is ridiculous to conclude that it can exert any antiseptic influence against an infectious process, and further, that transfusion of fluids into the eye can be accomplished more readily by instilling them into the conjunctival sac than by injecting them beneath the conjunctiva.

Mellinger and Pflueger claim to have produced excellent results in the absorption of exudates in iritis, choroiditis, and other diseases, by the subconjunctival injection of normal salt solution, and they contend that the action of all such injections is that of an alterative, stimulating the lymphatics and thus hastening the absorption of infectious substances and inflammatory deposits. But Darier and others say they are unable to obtain the results with salt solution that they have with the mercurial.

During the last three years I have had frequent opportunities of using this treatment and have come to regard it as a valuable aid, particularly in affections of the iris and choroid. A few illustrations will suffice to show its action in favorable cases.

A young man, 21 years of age, presented himself at the Dispensary of the Illinois Eye and Ear Infirmary with a severe keratitis and iritis of the left eye, caused by a foreign body lodging on the cornea one week before. There was marked infiltration of the cornea about the injured spot, hypopyon, the iris was swollen and firmly bound to the lens, and the eye was very red and painful. The pupil refused to dilate after several instillations of atropine. Two or three minims of a 1:1000 corrosive-sublimate solution were then injected under the conjunctiva, and the eye was bandaged. Atropine every three hours, and hot applications, were ordered. In two days he returned. The eye was much less red, the pain had ceased, the pus had disappeared from the anterior chamber, the pupil had fully dilated, and the infiltration of the cornea was disappearing. He continued the atropine and used a collyrium of 1:5000 bichloride of mercury, and was soon well.

This was clearly a case of infection of the cornea and iris from a foreign body, the course of which was promptly checked by the local treatment. It may be said in criticism that a similar result might have been obtained by the use of milder means, but I have seldom seen such rapid improvement with any other treatment, and the urgency of the case certainly justified the vigorous measure.

Case 2 —T J—, aged 27, had a typical syphilitic iritis, of the

gummatous variety. The pupillary margin of the iris was firmly adherent to the lens. There was great pain, which was partly relieved by leeches to the temple and hot applications. The vision was reduced to $\frac{2}{200}$. Inunction of mercury, internal administration of mercury, and atropine had not relieved him at the end of one week. A few hours after the first injection of bichloride the pupil began to dilate under the influence of the atropine. Two days later the injection was repeated, and all the adhesions gave way, the aqueous cleared, and normal vision returned. Of course the constitutional treatment was continued.

Case 3 —P W—, a man aged 39, when first seen had an irido choroiditis of both eyes of two weeks standing. The vision of the right eye was reduced to counting fingers at six inches, that of the left to counting fingers at eighteen inches. There was seclusion of the pupil, from exudate, which prevented any view of the interior of the eye. The patient gave a history of syphilis contracted four years previously. After four injections of bichloride, at intervals of two and three days the vision of the right eye had improved to $\frac{2}{200}$, that of the left to $\frac{3}{80}$. Sn 4 could be read with the left eye. The pupillary exudate cleared away so far as to allow an indistinct view of the fundus, where several fresh choroidal plaques were seen. The vitreous of the right eye remained quite hazy. Still further improvement was expected, but the patient discontinued his attendance at the dispensary and was not seen again.

Case 4 —A man of 38 years, who denied having had syphilis, was seen by me April 4, 1894. Ten days before, he had noticed a fog appearing over his sight. This rapidly became more dense, so that when I first saw him he was only able to count fingers at six inches with the right eye and at two feet with the left. There was no pain, no evidence of iritis, and the tension was normal. The pupils dilated readily with atropine, but it was impossible to see the fundus of the eyes owing to the diffuse opacities in the vitreous. He was at once given a subconjunctival injection in the right eye, followed two days later by a similar injection in the left. Improvement was noticed from the first. He received in all four injections in each eye, at intervals of two days. Six days after his first visit his sight had so far improved that R V = $\frac{1}{60}$, L V = $\frac{2}{60}$, and ten days after, April 14, R V = $\frac{1}{30}$, L V = $\frac{2}{30}$. The opacities in the vitreous disappeared with remarkable rapidity, so that at the last only a few could be seen. The choroid and retina appeared normal, except that the retinal vessels seemed slightly enlarged. I had this patient continue his treatment with protiodide of mercury,

one-fourth grain three times a day, strongly suspecting he was syphilitic. There had been no recurrence of the trouble at the end of three months.

In this case the injections did not cause severe pain, and the result in its promptness and completeness was unusual and far beyond my expectations.

I would not have you believe that all cases have been so encouraging as those I have briefly described. For example, the few cases of parenchymatous or interstitial keratitis that I have subjected to the treatment have not been in the least benefited by it, and one of them was apparently made worse.

Sympathetic ophthalmia, in my experience, has not been relieved by this measure, and at the present time I have a most distressing case of sympathetic irido-choroiditis following cataract-extraction six months ago, in which six injections of cyanide of mercury combined with other treatment have been of no avail. At the Ophthalmological Congress at Heidelberg in August of this year, Darier reported cases of this trouble completely cured by injections of cyanide of mercury combined with drainage of the aqueous humor by paracentesis.¹ This also I have tried in the case mentioned, but without success.

One of the most interesting cases with which I have had experience is that of a boy 14 years old who was brought to me September 14, 1895. His father reported that the lad had been short-sighted since childhood, but had never had any disease of the eyes and had always been in good health. V R $\frac{20}{120}$, V L $\frac{20}{120}$. He could read Sn 5 with each eye. This was not improved materially by any lens that could be selected, although a sph + 0.5 made somewhat clearer the letters of the line that he could see. Skiascopy showed that he was hyperopic about 0.5 D. The ophthalmoscope revealed at once the reason of the poor vision. The optic disks were decidedly atrophic, the pallor in each case being more noticeable on the temporal side. Aside from this change, the fundus of each eye was normal. Diligent inquiry revealed no cause for this atrophy. None of the members of the mother's or father's family had had poor sight, except an aunt of the latter, who in late life had become blind and had undergone an operation, possibly for glaucoma or cataract. The only other clue was that in infancy he had an illness, regarded as slight, during which he had something like a convulsion. However, it was clear that there had been an optic neuritis, and the parents were informed of the hopelessness of

¹ *La Clinique Ophthalmol*, Aout, 1896

the case. They were very anxious to have something done, and I prescribed potassium iodide to be taken in ten grain doses the first day and to be increased by one grain a day. The visual fields for white, red and green were taken, and showed, as you see, the usual contraction (Fig 1). Nine days later I discontinued the iodide and

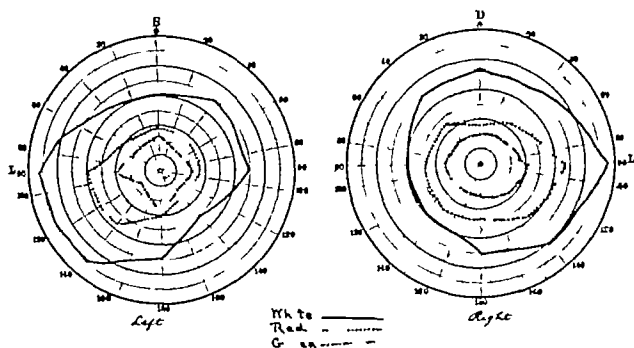


FIG 1.—Visual fields of A. P.— taken September 14, 1893. There is noticeable contraction of the fields for red and green R. V. = $\frac{5}{20}$ L. V. = $\frac{30}{20}$

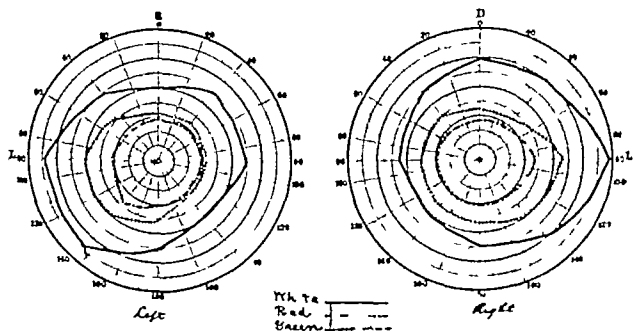


FIG 2.—Visual fields of A. P.— taken October 28, 1893, after eight injections of corrosive sublimate. Improvement of fields for red and green. Compare Fig 1. R. V. = $\frac{10}{20}$ L. V. = $\frac{15}{20}$ +

gave a subconjunctival injection of bichloride of mercury in the right eye, and followed it in two days by one in the left. The pain was not great nor was the reaction severe. In addition to this thinking that it might be advantageous to stimulate the circulation

of the injected solution in the deeper structures around the nerve, I administered two milliamperes of the constant current, applying the positive pole to the eye and the negative to the side of the neck, hoping to get the effect of cataphoresis. This was done immediately after each injection. By October 5 he had received four injections in each eye, and his vision had improved slightly, from $\frac{30}{120}$ to $\frac{20}{80}$, in each. October 20, after eight injections and applications of electricity, vision was $\frac{20}{40}$ in each and he could read Sn 2. Here it remained, and although he received four or five injections more, altogether about thirteen in each eye, there was no further improvement. The fields, charted on the 28th of October, five weeks after the first treatment, show a decided improvement over those first taken (Fig 2).

Of course, nerve fibres could not be made over again, but it seems clear that some bundles that were pressed upon by connective tissue were released by its absorption, and so recovered their function. Six months later the vision was the same, $\frac{20}{40}$, and I have reason to believe the improvement is permanent.

It would seem as if we had in this new treatment a powerful adjunct to the old and tried methods in some diseases of the eye. It seems to be most efficacious in diseases of the iris and choroid of all varieties, especially where adhesions do not yield to atropine and antiphlogistic measures. In violently acute cases it seems to be contra-indicated until there has been some abatement of the inflammation. This is the opinion of a majority of those who have used it most extensively, according to Dr Bernstein, who presented an excellent *résumé* of this subject at the meeting of the American Medical Association at Atlanta, and my own experience agrees with it.

It is not supposed that this means is to be employed to the exclusion of other well known and valuable remedies, and in a case of iritis we would not omit the atropine, hot compresses, leeches, constitutional treatment, etc., that experience has shown are invaluable.

It is not a panacea, but, as Gepner remarks, "it is an excellent method of treatment in those cases in which the administration of a mercurial is indicated."

REMARKS ON COLLES' FRACTURE

BY EDWARD H. LEE, M.D., CHICAGO,

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The fracture of the lower end of the radius, *fractura radii typica*, or Colles' fracture, is the most frequent of all fractures and one of the greatest importance. The line of fracture is usually situated from one to one and a half inches above the joint surface, taking a slightly oblique course from the volar to the dorsal surface of the forearm.

The fracture is rarely produced by direct force, the mechanism of production is as follows: In falling on the hand, which is usually in full extension and dorsal flexion, the *ligamentum carpi volare profundum* is placed under severe tension, when the limit of its elasticity is exceeded, it is not torn itself, but tears or fractures the styloid process of the radius and draws it with itself into an exaggerated position of dorsal flexion; at the same time the shaft of the bone is displaced downwards by the weight of the falling body, which makes the dorsal displacement of the styloid process a still greater one, and produces the typical silver fork deformity. Associated with this deformity, another characteristic dislocation is frequently met with: the hand is displaced in a radial position, allowing the styloid process of the ulna to protrude abnormally. This deformity is produced by the direction of the force or by the effect of weight. Stetter believes that the interosseal ligament and the pronator quadratus muscle are also active in the formation of this displacement; either or both may draw the epiphyseal fragment towards the interosseal space, even if the fracture is very close to the joint.

Typical Colles' fracture may also be produced by a fall on the back of the hand, this occurrence is, however, a rare one. As before mentioned, the position of the arm and hand is most frequently one of full extension of the arm and dorsal flexion of the hand.

I have produced two typical fractures on the cadaver by adhering as closely as possible to the positions in which the fracture most frequently takes place.

Experiment 1—The cadaver was laid flat upon a table, the forearm placed at a right angle to the upper arm and vertically to

the surface of the table. The hand was now placed in exaggerated dorsal flexion, so that it formed a right-angle with the forearm. A large block was placed upon the palmar surface of the hand, and with a heavy piece of wood considerable force was exerted by blows on the block resting on the palmar surface of the hand. The first two blows did not produce the fracture, but the third blow was followed by a snap which could be distinctly heard. Examination revealed a fracture of the radius, apparently about one inch above the joint, giving the typical deformity. The muscular contraction

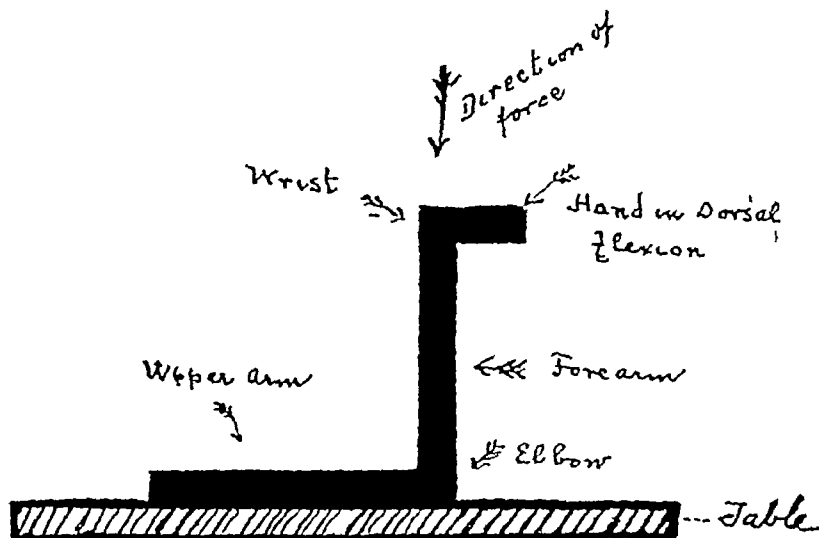


FIG 1

being absent, the deformity was not as pronounced as it would have been in the living subject, and its reduction was very easy. A careful dissection of the elbow-joint was now made, to determine if a fracture or dislocation had taken place in this region, as the force had been directly transmitted to the elbow-joint. No fracture or dislocation was present, the only injury being that of the radius.

Experiment 2 —In a similar manner a fracture of the radius of the other arm was produced, this time as a result of the first blow. Dissection of the elbow again showed that no fracture or dislocation had been produced in this region.

I now amputated both arms at the elbow-joint and brought the specimens to Dr Otto Schmidt, who had the kindness to make skiagraphs of them.

I first placed both arms over the plate, volar surface downwards, allowing the deformity (silver-fork position) to remain as pronounced as possible. A comparison of these skiagraphs shows that in both specimens we have



FIG. 2.—Left hand, palmar surface downward.



FIG. 3.—Right hand palmar surface downward.



FIG. 4.—Left hand, palmar surface downward.



- 1 A typical fracture of the radius about one to one and a half inches above the joint
- 2 A displacement and overriding at the point of fracture
- 3 The ulna is not fractured at any point
- 4 There is no dislocation of the wrist present A careful inspection of the carpal bones shows that they are in position

Both arms were then placed over the plate with the dorsal surface downwards, a wad of paper being placed above the line of fracture to maintain the deformity, the result, as may be seen by the skiagraphs, being very similar to the former one, showing the fracture of the radius and the displacement of the epiphyseal fragment

Later the deformities were reduced, and the skiagraphs showed them in perfect position I have not included these plates in this article, as they do not present any further interesting points than a skiagraph of a normal arm, the line of fracture was with difficulty determined

These experiments are interesting as exhibiting the manner and the ease with which the fracture was produced without associating it with other injury, and the importance of the x rays in the treatment of fractures We are able with the aid of these rays to determine where the fracture is located and what parts are involved Associated dislocations may also be determined The x ray would be of still greater importance in the after-treatment having replaced the fracture, we can be assured that it is in proper position, and by later plates prove that it remains in position It would be advisable to have a skiagraph taken before reducing the fracture, in order to determine what conditions are present, another immediately after reduction, to show that the parts are in exact apposition, and then afterwards as often as may be required—usually once will be sufficient

The treatment of Colles' fracture which would be most applicable in connection with the use of the x rays would be the dorsal plaster-hemp splint of Beele, as a skiagraph may be taken from the volar surface of the arm without removing the bandages I have always found the Beele splint to give great satisfaction After reduction, a splint is moulded to the dorsal surface of the arm which holds the parts in perfect apposition, it can be removed if necessary, and when replaced adapts itself perfectly to its former position on the arm Schede's volar wooden splint would also be a suitable one, with it the entire dorsal surface of the arm may be exposed without the removal of the bandages

The skiagraph will undoubtedly have a wide range of usefulness in the treatment of fractures. By its accuracy in diagnosis, effective reduction, and final results may be secured. One possible disadvantage may accrue to the surgeon in cases of bad deformity, or where a mistake in diagnosis has been made the skiagraph in such cases rendering a presumption of faulty results almost a certainty.

In concluding I wish to express my thanks to Dr Otto Schmidt and Mr W Fuchs for furnishing the skiagraphs for the experiments, as well as for the excellent work done by them in several cases which I had occasion to operate on after they had revealed the conditions present in each case.

CYSTIC DEGENERATION OF THE KIDNEY, WITH CALCULI

BY W. M. DONALD, M.D., DETROIT, MICH.,

Lecturer on Hydrotherapeutics and Clinical Medicine, Detroit College of Medicine

Robert B——, a boiler-maker aged 28 years, came to the polyclinic of St Mary's Hospital, July 1, 1896. He complained of extreme weakness, and much pain in the back, especially in the right lumbar region. For eight years he had suffered from pain in the back, which at times was worse, preventing continuous employment at his trade. Even prior to his twentieth year he complained frequently of pain in this region, but his parents attributed this to indolence and kept urging him to work. Two years ago he was employed as a bar-tender, which occupation seemed to aggravate his symptoms. He gradually grew worse until April, 1896, when he had to pass most of his time in bed, but was able to rise occasionally. The family history is negative.

When admitted to the hospital, about July 1, he was weak, pale, and emaciated, the pulse was 110, and temperature 101.5° , there was marked tenderness over both kidneys, more pronounced over the right. An attempt was made to palpate the kidneys, but owing to the pain which this caused it was given up. The urine was scanty, never exceeding 32 ounces, and was loaded with albumin and pus. A diagnosis of calculus of the right kidney, and a probable but unknown lesion of the left one, was made.

The condition of the patient was such that it was not deemed wise to urge surgical measures, and internal medication offered little hope. Consequently he was treated symptomatically and kept closely under observation, as an early fatal termination of his illness was all that could be looked for. Death took place August 10, 1896, some five weeks after admission.

Section cadaveris, two hours after death, showed the subject much emaciated, peritoneum thickened and fibrous, liver dense in consistency and extending to umbilicus on right side, right kidney much enlarged, containing large cyst filled with pus, urine, and calculi, left kidney larger than right, but otherwise presenting the same pathological appearances. Both kidneys were attached by strong adhesions to contiguous structures. On section the left kidney was found to consist of a dense fibrous capsule, which enclosed pus and stones in immense crypts, but exhibited not a vestige of healthy kidney tissue. The right had the same fibrous capsule, which was, however, not so dense as that of the left, and it con-

tained a small portion of healthy secreting surface $1\frac{1}{4}$ inches long by $2\frac{1}{2}$ inches broad, or about one seventh of the whole kidney, laid open, as shown in the photograph it measured 5 by $4\frac{1}{2}$ inches. The shaded portion in the kidney to the left shows the size of the healthy portion. Between the two lie stones extracted from the crypts.



One of the most striking points in connection with the case is the surprisingly small amount of healthy tissue that was sufficient to sustain life. It is probable that there had been little change in this respect for some months before death. The case is also instructive from a surgical standpoint. The diagnosis of right renal calculus was fully made before death and had an operation been undertaken it would certainly have resulted in the removal of the entire right kidney, especially as the pain and other symptoms pointed to a greater involvement of the right than the left. There was so little secreting structure left in the right kidney that an operator would have been justified in removing the entire organ. Had this been done, it would have taken every vestige of renal tissue which this man possessed that was capable of secreting urine.

OPERATION FOR MOVABLE KIDNEY, FOLLOWED BY GANGRENE OF THE STOMACH.¹

BY J W IRWIN, M D, LOUISVILLE, KY

A young lady 26 years of age, from an interior town of the State, consulted me two years ago. I found upon examination that she had a movable kidney. Her general health was much impaired, and she suffered a great deal of pain, mostly in paroxysms. She desired to know if the trouble could be cured, or whether a surgical operation would restore her to health. Her condition at the time was such that I was very much inclined to believe an operation would prove disastrous, and advised against such a procedure.

The case was placed under medical treatment, consisting of a regulation of diet, rest, etc., and for two years her health improved, though the kidney at times troubled her, it seemed to be pushed forward under the margin of the liver. She had had several attacks of gastritis, possibly acute, I had not seen her in any of these, but the history pointed in that direction. I did, however, see her in one or two mild attacks, during the two years she was under treatment.

A few months ago she called at my office to inform me that she had made up her mind to have an operation, that she was not well and was tired of the pain in her side. As she contemplated marriage in case of ultimate recovery, she had consulted several physicians in regard to her condition—one in Cincinnati who was not able to make a diagnosis, but suggested that the facts could be ascertained by means of an exploratory incision. The surgeons told her that if the condition happened to be a movable kidney it might be stitched in position and an ultimate cure effected. Her mind was so impressed with the importance of having an operation to restore health and relieve pain, that she would listen to no argument or suggestion which did not point in that direction.

I called Dr W H Wathen to see the case in consultation, and he agreed with me that the lady had a movable kidney, and in deference to her wishes he consented to make an exploratory incision and if need be to fix the kidney in place. A few days subsequently she entered the infirmary and was prepared for the operation. Her health was fairly good, the condition of her system appeared to be much better than at any time during the previous two years.

¹ Read before the Louisville Clinical Society, August 18 1896

The operation was done by Dr Wathen, assisted by Dr W C Dugan, and at the patient's request I was present. For two or three weeks after operation the wound progressed favorably, and was about healed when one morning I was called and found her vomiting a green flaky mucus and suffering great pain in the region of the stomach. The vomited matter was ejected with a great deal of force. Her sufferings were intense, and she was much prostrated and nervous. Upon examination I gave it as my opinion that she had gastritis, this time possibly due to sympathetic disturbance between the kidney and stomach. I called the attention of the friends and physician to the fact that the case was a serious one, and that subsequently gangrenous patches would result in the stomach and that she would vomit blood and portions of the membrane of the stomach all of which was verified by an expert examination of the contents of the stomach. This showed that the prognosis in the case was correct and the trouble progressed from bad to worse, for upwards of two weeks when she died.

I report the case mainly because upon five previous occasions I had seen similar inflammatory conditions of the stomach result in death and upon two occasions an autopsy revealed sarcoma of the kidney. What connection existed between the condition of the kidney and the stomach appeared to be mostly of a sympathetic nature, and the gravity of the disease seemed to be out of all proportion to what we usually see occurring without some local irritant such as mineral poison. This in my opinion, then, was a case of gastritis induced by the disturbed condition of the nervous system, caused or aggravated by the fixation of the kidney, and resulting in gangrenous patches and death.

BRAIN ABSCESS AND PACHYMENINGITIS ¹

BY I N BLOOM, A B, M D,

Clinical Professor of Genito-Urinary Diseases in the University of Louisville, Dermatologist to the Louisville City Hospital, etc., Louisville, Ky

I was consulted on August 15, 1896, by a lady aged 44, who had been in good health up to last December. She had been married twice—the first time when she was quite young, and again seventeen years ago. As a result of the first marriage she had twins, and a boy who died at the age of 17, the twins survived five or six months in apparent good health, at the end of which time they both died of some acute infantile disease. The second marriage resulted in one child, now a girl of eleven years. She had never aborted, and was an unusually robust, strong, healthy woman, with a good family history. Last December she began having headaches, which would appear at intervals of about two weeks, at first keeping her in bed for twenty-four hours, but the following day she would be all right. They slowly increased in severity, but not in frequency, until April last. At that time, after a vacation of a couple of days, she came home feeling ill and went to bed. In the morning her husband went for a physician, and when he returned found her, as he said, unconscious. She remained in a condition of stupor rather than unconsciousness, as by close questioning I was able to find she passed her urine voluntarily in a vessel, and she could be aroused so that she would even take food when it was put to her mouth. After three or four days she began to suffer from diarrhea, which her husband reported as an attack of cholera morbus. This "spell" lasted eight or ten days. Then every week for the next month she had intense headaches, keeping her in bed. During and after the attack of April there was marked aphasia of a peculiar kind. For instance, if she wished a child to dust the piano, she would say, "Dust the chair," the child would proceed to dust the chair, when she would grow angry and insist that she had said "piano." Finally the miscalling of words became the rule. The headaches continued, but the patient gained in flesh, although constantly confined to her room, her appetite was fairly good during this time, and she seemed perfectly well, showing only occasionally some evidence of mental trouble—for example, on one occasion she did not know where she was nor in what city, and on another occasion did not know in whose house she was. An examination of the

¹ Read before the Louisville Clinical Society, September 15, 1896

urine had disclosed nothing except that she had a slight cystitis, which had lasted many years, causing her to get up once each night to urinate

I saw her first on Saturday night. She had been much worse for two or three days, had been unable to eat, and some little vomiting had occurred that day and the day before. Her pulse was full and regular, 70 to the minute, respiration 18 to 20. She was lying in an apathetic condition, but in response to my request she extended her hand that I might feel her pulse, and compliance with several other little requests showed that there was no paralysis and she was at least semi-conscious. I made as thorough an examination as was possible under the circumstances, and left with the statement that there was no hurry that I would be back the next afternoon (Sunday), that at present I was unable to say anything further than that I disagreed with the physician who had seen her some time before. (Her physician a gentleman who was called in at the time she was unconscious they claimed stated that she was suffering from uremia, this was in the month of April.) I called Sunday morning and found her having spasms of a peculiar kind, recurring every five minutes and lasting perhaps a minute still, the pulse was good and there was no elevation of temperature. The spasms were extremely painful to witness but I still did not think there was any danger. Her nephew, who is a student of medicine, was present at the time, and I instructed him to give her one fourth of a grain of morphine, which was done, and immediately the pulse began to increase in frequency, it jumped from 70 to 160 within three minutes. We gave her a hypodermic of one thirtieth of a grain of strychnine, and half an hour later another, neither of which had any effect. She died while I was in the room, about three-quarters of an hour after the injection of morphine. I had made a probable diagnosis on Saturday night of tumor of the brain, and possibly an existing chronic meningitis. The diagnosis was made in the presence of the family and her nephew.

I succeeded without much trouble in getting an autopsy, and found conclusive evidence of a pachymeningitis, and the skull was depressed on its inner surface corresponding to the existence of the meningitis. There was an abscess tumor of the cortical portion of the left occipital lobe of the cerebrum, pointing at the upper part of the internal surface.

A CASE OF PARESTHESIA

BY HAROLD N. MOYER, M.D.,
Adjunct Professor in Rush Medical College, Chicago

Paresthesiæ or perverted sensations are frequent accompaniments of many forms of nervous disease, both organic and functional. Thus we have peculiar sensations in the lower extremities as one of the earliest symptoms in some cases of tabes, while formication, a sense of coldness, constriction or tickling is very frequent in certain forms of neuritis. In hysteria, paresthesiæ are very commonly present, and their more aggravated forms are often seen in cases of neurasthenia. That they may be present in individuals who have otherwise healthy nervous systems and who are in comparatively good general health, has long been noted.

A case of this latter kind recently came under our observation which is so far exceptional that it is deserving of notice. L. F.—, by birth an American, and a farmer by occupation, complained of an abnormal and peculiar sensation in his hands, which he described as a sense of fullness and constriction of the fingers. There was no actual pain, nor had there been at any time any discoloration, swelling, or edema of the surface. The sensation was worse in the right hand, where it had been present for three years, in the left hand it had only been noted for about a year. Prior to coming under observation there had been no change in his general health, which was excellent. He is 24 years of age, and when a youth was employed in a bookbindery establishment, later he learned the trade of a fireman, but within the past few years has been at work as a farm laborer. He is strong and robust, of an excellent color, his appetite is good, and he is able to do hard manual labor. With the exception that his sleep is somewhat broken by the distress which he experiences in his hands, he does not think that his general health has been affected in any degree by this trouble. The sensation as he describes it never amounts to a pain, although he says it is very distressing and is associated with a heavy feeling. At times the fingers feel as if they were enormously increased in size, and when he looks at them he is surprised to find that they are as small as usual. At times the sensation is much worse than at others. So far as he is aware he has always been free from it in the summer time. He says it leaves him in May and returns again late in September, augmenting as the weather becomes colder. The condition is not aggravated by exposure to cold, as when he is out of

doors he is freer from it than at any other time in the twenty four hours, although at no time is it wholly absent. This he attributes to the fact that his attention is attracted by his work, and in consequence his thoughts are not so much fixed on the condition of his hands. The symptom is always worse at night, and he says he is almost invariably awakened by it and that it is only relieved by rapid movements of the arm—if it is severe, he has to sit up in bed and swing the arm. He is satisfied that the condition is gradually growing worse, and now that it has invaded the left arm in addition to the right he has become seriously alarmed about it.

He says he has never sustained any serious injury or accident, nor has he had an illness. Examination shows him to be entirely healthy in every respect. His heart and lungs functionate normally, and the urine is normal. He does not present the slightest trace of neurasthenia. There is no tremor of tongue or eyelids, and no undue sense of fatigue upon exertion. He says he is able to work all day in the fields at hard manual labor without experiencing any especial fatigue. None of the signs of hysteria are present, his fields of vision being normal and containing no areas of anesthesia. His station is good and the knee-jerk is present. Examination of his hands shows that they are roughened and calloused by toil, but there are no abnormal changes in the skin or nails. There is no suggestion of peripheral neuritis. Sensation is absolutely intact. Tactile sensation is fully equal to that of any one whose epidermis is as much thickened as this man's. Slight differences of temperature are easily appreciated. He can pick up a pin readily and distinguish between objects which are held in his hand with his eyes closed. The rate of conduction seems to be about normal, and the pain sense is unimpaired.

We report the above case not with the hope of offering an explanation nor of giving a diagnosis. It is simply one of those peculiar disturbances of sensation which may have their origin in the psychical sphere or possibly may be associated with some obscure changes in the endings of the cutaneous nerves. It may be a precursor of serious organic disease, which will show itself after years have passed.

BOOK REVIEWS.

PRACTICAL DIAGNOSIS THE USE OF SYMPTOMS IN THE DIAGNOSIS OF DISEASE By Hobart Amory Hare, M D, B Sc Illustrated with 191 engravings and thirteen colored plates Philadelphia and New York Lee Bros & Co 1896

The writer of this review regards the average work on medical diagnosis as one of the most unsatisfactory in the domain of medical literature, primarily designed to be a guide for the beginner at the bedside of the patient, its purpose is comparable to that fulfilled by the manual of dissection—not claiming to be a systematic treatise on disease, but merely a guide for eliciting symptoms and to some extent for estimating their value

It is evident that in this volume Dr Hare has made a determined effort to overcome some of these defects He says "The object of this volume is to place before the physician and student the subject of medical diagnosis as it is met at the bedside To accomplish this, the symptoms met in diagnosis are discussed first, and their application to determine the character of the disease follows Thus, instead of describing locomotor ataxia or myelitis, there will be found in the chapter on the feet and legs a discussion of the various forms and causes of paraplegia, so that a physician who is consulted by a paraplegic patient can in a few moments find the various causes of this condition and the differential diagnosis between each So in the chapter on the tongue, its appearance in disease both local and remote is discussed In other words, this book is written upon a plan quite the reverse of that commonly followed For in the ordinary treatises on diagnosis the physician is forced to make a suppositional diagnosis, and, having done this, turn to his reference book and read the article dealing with the disease supposed to be present, when if the description fails to coincide with the symptoms of his case, he must make another guess and read another article In this book, however, the discovery of any marked symptom will lead directly to diagnosis Thus, if the patient is vomiting, in the chapter on vomiting will be found its causes and its diagnostic significance and the differentiation of each form of this affection from another"

The work opens with a brief introduction on general diagnostic considerations, and the remaining portion is divided into two parts—the first dealing with the manifestations of disease in organs, and the latter with the manifestation of disease by symptoms The first part is divided into thirteen chapters, dealing respectively with the Face and Head, Hand and Arm, Feet and Legs, Hemiplegia, the Tongue, Mouth, and Pharynx, Eye, Skin, the Thorax and its Viscera, the Abdomen and the Abdominal Viscera, the Blood-vessels and Pulse, the Blood, the Urinary Bladder and the Urine, the Bowels and Feces. This first part of the work is all that could be desired, both in arrangement and material We are satisfied from an examination of its contents that the arrangement adopted by the author is much superior to that usually employed, and that it will prove of great value to the beginner in medicine To those of us who are familiar with the older works on clinical diagnosis it will seem somewhat awkward, but we are satisfied it is in the line of improvement, as,

instead of being a treatise on symptoms it becomes what it purports to be—a guide to the examination of the patient.

Part Second deals with the manifestation of disease by symptoms. It is divided into nine chapters, dealing respectively with Fever and Subnormal Temperature Headache and Vertigo Coma or Unconsciousness Convulsions or General Spasm Vomiting, Regurgitation and the Character of the Vomit, Cough and Expectoration Pain, Tendon Reflexes and Muscle Tone Speech. We wish that the space at our disposal would admit of a more extended review and criticism of these various chapters but we would specially call attention to that dealing with fever and subnormal temperatures as being a philosophical and accurate statement of the present knowledge of pyrexias.

The work is very handsomely issued and beautifully illustrated.

A MANUAL OF CLINICAL DIAGNOSIS BY M. N. S. MICROSCOPICAL AND CHEMICAL METHODS By Chas. E. Simon. Published by the Johns Hopkins Hospital Baltimore Philadelphia and New York W. B. Saunders & Co. 1896

The great increase in the use of methods of diagnosis by bacteriological diagnosis has necessitated at least a working knowledge of these by the general practitioner. The large proportion of work done by the general practitioner is in making experts in chemistry and bacteriology rather than in the principles for every-day use. Much space is wasted in these theories which should have been devoted to procedures of practical value. The editor of the present volume, in his Preface, states in the main the reason why so little use has been made of these procedures by the practitioners. He remarks:

'It is curious to note that, notwithstanding the great importance of clinical chemistry and microscopy but little attention is paid to these subjects either by hospital physicians or by those engaged in general practice. This lack of interest is referable primarily to the fact that a systematic study of these branches has hitherto been greatly neglected not only in American medical schools but also in those of Europe.

It is no rarity to hear physicians in general practice claim that they are too busy to conduct careful examinations of the urine sputum blood gastric juice, etc. Would it not be reasonable to suppose however that a physician who is overwhelmed with work to such an extent that he cannot find the time to make use of aids in diagnosis which are quite as important as the stethoscope the laryngoscope or the ophthalmoscope would be in a position to employ an assistant in his laboratory? The younger practitioner is certainly not placed in such a dilemma and it is a fair assumption that he could successfully compete with his more experienced colleague in matters of diagnosis at least, were he to familiarize himself sufficiently with laboratory methods.

The time is at hand when the practice of medicine is becoming what it was long ago but then unjustly called, a true science and art. No continuing success can be built on empiricism or upon the proportion of guesswork which is inseparable from dependence upon the experienced etc. Diagnosis is now the password in medical science. A knowledge of electro-diagnosis of ophthalmoscopy of laryngoscopy etc. is at the present day a *sine qua non* for accurate diagnosis. Equally important at all times, and frequently even more important, is a knowledge of clinical chemistry and microscopy. It is inconceivable that a physician can rationally diagnose and treat diseases of the stomach, intestines, kidneys liver etc. without laboratory facilities.

"It has been the author's aim to present to students and physicians those facts in clinical chemistry and microscopy which are of practical importance. With the hope of exciting interest in these unjustly neglected subjects, he has not confined himself to bare statements of fact, which must in themselves be dry and uninteresting, but he has attempted to point out the reasons which have led up to the conclusions reached.

"Chemical and microscopic methods are described in detail, so that the student and practitioner who have not had special training in such manipulations will be enabled to obtain satisfactory results.

"The subject-matter covers the examination of the blood, the secretions of the mouth, the gastric juice, feces, nasal secretion, sputum, urine, transudates, exudates, cystic contents, semen, vaginal discharges, and milk. In every case a description of normal material precedes the pathologic considerations, which latter in turn are followed by an account of the methods used in examination. A glance at the table of contents will furnish an idea of the various subjects considered under each heading."

The work in the main is an excellent one. There are, however, certain serious omissions. In discussing urine the author remarks that "In females, semen is found in the urine whenever the external genitals have been polluted during or after coitus, as well as in the exceptional cases in which connection has been effected by the urethra. From a medico-legal standpoint the discovery of spermatozoa in the urine of women may be of the greatest importance, but otherwise is without significance." This fails to recognize the fact that in more than one instance a vaginal parasite (*trichomonas*) has been mistaken for spermatozoa and has led to conviction of innocent men of rape. In a notorious instance this error was made in Pennsylvania. Better knowledge led to the suicide of the "diagnostician" making it, who had thereby punished an innocent brother practitioner accused of rape in consequence of an anesthesia delusion. No figure of this parasite, or comparative reference to it, is to be found in the present volume. This omission is a culpable one, since there is no one so fond of posing as a forensic expert, and therein blundering, as the amateur microscopist. The book, however, merits purchase by the practitioner, as outside the domain of forensic medicine it is a reliable guide. It is excellently issued, and illustrated by clear diagrammatic cuts.

AN AMERICAN TEXT-BOOK OF PHYSIOLOGY. By Henry P. Bowditch, M.D., John G. Curtis, M.D., Henry H. Donaldson, Ph.D., W. H. Howell, Ph.D., M.D., Frederick S. Lee, Ph.D., Warren P. Lombard, M.D., Graham Lusk, Ph.D., W. T. Porter, M.D., Edward T. Reichert, M.D., and Henry Sewall, Ph.D., M.D. Edited by Wm. H. Howell, Ph.D., M.D., Professor of Physiology in the Johns Hopkins University. Philadelphia: W. B. Saunders, 1896.

The collaboration method in the production of medical text-books has been employed very much of late. While it is a wide departure from former methods and has many advantages, it is not wholly free from objection. It has proven very useful in the production of certain systems and encyclopedias of medicine, and has very great advantages where a large field is to be covered. Of late, however, it has been in vogue for the purpose of producing text-books on single subjects, so that almost every topic has its "system" and "encyclopedia." It has not, however, up to the present extensively invaded the field of

the text book for the undergraduate. The work before us is the first attempt to produce a text book of physiology not the work of a single writer. As the author says in his Preface, it does not seem desirable to attempt to discuss the relative merits and demerits of the two plans since the method of collaboration is untried in the teaching of physiology and there is therefore no basis for a satisfactory comparison. As a justification for making the attempt, Dr Howell claims that the literature of experimental physiology is so great that it seems to be almost impossible for any one teacher to keep thoroughly informed on all its topics. This fact, he thinks, accounts for some of the defects of our present text books, and it is hoped that one of the advantages to be derived from the collaboration method will be that owing to the less voluminous literature to be consulted, each author will be able to base his elementary account upon a comprehensive knowledge of the part of the subject assigned to him. It is thought that the student will thus gain the point of view of a number of teachers reaping the same benefit that would be obtained by following courses of instruction under different teachers. A similar advantage may be expected to follow the inevitable overlapping of the topics assigned to various contributors since this has led in many cases to a treatment of the same subject by several writers, who have approached the matter under discussion from slightly varying stand points and in a few instances have arrived at slightly different conclusions. In this respect, it is believed the book reflects more faithfully than if written by a single author, the legitimate differences of opinion which are held by physiologists at present with regard to certain questions.

The work opens with an extended introduction by Dr Howell in which he defines the scope of the subject and discusses to some extent the nature of the vital processes. Physiology as a science he says, is confessedly very imperfect and cannot compare in exactness with the sciences of physics and chemistry. This condition of affairs need excite no surprise when we remember the very wide field that physiology attempts to cover and the enormous complexity and instability of the form of matter which it seeks to investigate. The present era seems to be one mainly of accumulation of reliable data derived from laborious experiments and observations. A synthesis of these facts with the great laws of generalization is a task for the future.

The second chapter, from the pen of W P Lombard deals with the general physiology of muscle and nerve, and is a most exhaustive discussion of the subject. We regret that we have not space at our disposal to exhaustively review this chapter.

The next four sections—on Secretion, Chemistry of Digestion and Nutrition, Movements of the Alimentary Canal, Bladder and Ureter and Blood and Lymph—are from the pen of Dr Howell. A reading of these chapters shows a very considerable increment to our information on these subjects in recent years. We were especially interested in the discussion of the so-called internal secretion of the ductless glands while it is an excellent presentation of existing knowledge on this subject and shows what advances have been made yet it serves to indicate how much more remains to be done. The writer's discussion of the production of fat in the body illustrates the thorough manner in which this and like topics are dealt with.

Chapter VII, on the Circulation is divided into three parts. The first on the mechanics of the circulation of the blood and of the movement of the lymph is from the pen of Dr John G Curtis while part two on the innervation

tion of the heart, part three, on the nutrition of the heart, and part four, on the innervation of the blood-vessels, are contributed by Dr W T Porter

The chapters on Respiration and Animal Heat are written by Edward T Reichert

A very interesting chapter on the Central Nervous System is written by Henry H Donaldson. It consists of 144 pages and is replete with the latest doctrines regarding cerebral localization and the recent histological studies of Galgi and Cajal regarding the neuron and its relation to nutritional disturbances of the nervous system.

The chapter on Special Senses is written by Henry P Bowditch and Henry Sewall

There remain to mention the physiology of the Special Muscular Mechanism, by Lombard and Sewall, and of Reproduction, by Lee

The work closes with an account of the Chemistry of the Animal Body, by Graham Lusk

Throughout the work each subject is accompanied by a fairly complete bibliography, the different writers varying to some extent in the fullness of their literary references. We regard this, while something of an innovation in a text-book, as in the main an advantage, for while it enables the advanced student to consult original references, it will stimulate the undergraduate to occasionally refer to these original sources, and thus lead to a broader scientific spirit

The work, while large, being made up of 1052 pages, is not cumbersome. It is handsomely printed and adequately illustrated

AN AMERICAN TEXT-BOOK OF APPLIED THERAPEUTICS Edited by J C Wilson, M D, assisted by Augustus A Eshner, M D Philadelphia W B Saunders 1896

This work of 1326 pages may be taken as in some degree an index of therapeutic activity and research in this country. With the exception of the articles on malaria and leprosy, all the contributions are by American writers

The book has been arranged, as far as possible, upon modern pathologic doctrines, beginning with the intoxications and following with the infections, diseases due to internal animal parasites, diseases of undetermined origin, and finally the disorders of the several bodily systems—digestive, respiratory, circulatory, renal, nervous, and cutaneous, to which has been added a consideration of the disorders of pregnancy

Surgical topics have not been considered, though in a few instances operations are referred to where necessary to complete the text

The work opens with two chapters from the pen of Dr I E Atkinson—one on the Acute Poisonings, the other on the Resuscitation of the Apparently Drowned

Under the term Food-infection, Victor C Vaughan considers the various forms of poisoning which occur from decomposition and change in food. His well known views regarding the poisons which develop in meat and milk are clearly set forth. Among the other forms no mention is found of the poisonous properties which frequently develop in honey, though the latter are of classical antiquity

Under Drug Habits, Carl Frese discusses the question of the rapid or gradual withdrawal of morphine in the treatment of opium-addiction. Without

definitely committing himself he evidently leans to the rapid gradual with drawal as advocated by Erlenmeyer

Dr Edes discusses the Chronic Intoxications Under the head of alcoholism, he says there is no important difference clinically between the different forms of alcohol In some respects the chronic drinker of brandy rum or good whiskey may differ symptomatically from him who takes the same amount of ethylic alcohol in a more dilute form practically however the difference in the forms of drunkenness depends so far as the intoxicating agent is concerned on the difficulty of introducing into the stomach in the weaker beverages so large a quantity of alcohol in the same length of time as may be done with distilled liquors. In the treatment of delirium tremens he recommends the withdrawal of alcohol at once

John C. Da Costa writes on Septicæmia Pyæmia and Erysipelas In the pages dealing with infected wounds we are surprised to find no mention of the wet boric acid dressing which has proven so efficacious in the treatment of these conditions We infer that he exclusively recommends a dry dressing excepting when there is a slough No mention is made of the possibilities of sero-therapy, but something should have been said of intra venous injections, the so-called washing of the blood

The article on Diphtheria closes with a quotation from Prof W H Welch who says 'The results of the treatment of over 7000 cases of diphtheria by antitoxin demonstrates beyond all reasonable doubt that anti-diphtheritic serum is a specific curative agent surpassing in its efficacy all other known methods of treatment for this disease It is the duty of the physician to use it.'

Dr Louis Starr, from the number of drugs which are discussed in the treatment of whooping-cough, confesses that we have as yet no satisfactory remedy

An excellent chapter on the Management of the Exanthemata is from the pen of George Dock

J C Wilson gives us a very full discussion of the Management of Typhoid Fever His views in the main accord with those of most recent writers—that the cold-bath treatment yields the best results not only does it lower temperature but it favorably influences the course of the disease To those who think that the treatment of this disease is comprehended by means for reducing temperature, we would especially recommend the perusal of this chapter While the author goes into an extended discussion of the various drugs which have been used in this disease we regret that gualacol and its compounds are not mentioned We think that clinical results justify the placing of this drug only second to the cold bath in the management of enteric fever

The longest chapter and one of the most interesting in the book is that dealing with the Treatment of Tuberculosis, by James T Whitaker

An excellent and extended article on the Treatment of Syphilis is from the pen of Orville Horwitz.

In the Treatment of Dysentery, W W Johnston looks upon this condition as really a symptom, though he thinks that the amœba coli is the cause of most tropical dysenteries and of many which occur in the temperate regions. Frequent irrigations are insisted upon and we are advised to avoid opium The Anglo-Indian method by large doses of ipecacuanha is said to be losing ground in this country

A Laveran has a most instructive chapter on the Treatment of Malarial

Fever Of the drugs recommended, the most important are the derivatives of Peruvian bark. Quinine is pronounced the most efficacious, and of the salts of this alkaloid the hydrochlorate is given the preference. It is difficult to understand the preference given to the sulphate in this country, as according to Laveran's table the basic hydrochlorate contains 81.71 per cent of the alkaloid and the neutral hydrochlorate 81.61, while the corresponding sulphate salts contain but 74.31 and 59.12 per cent respectively. Not only do the hydrochlorate salts contain a greater proportion of quinine, but they are much more soluble in water, the neutral hydrochlorate dissolving in 0.66 parts, while the neutral sulphate requires 9 parts and the basic sulphate 581 parts. Iodine and methylene blue are mentioned, but arsenic receives scant notice. Prophylactic properties are distinctly denied to the latter, principally upon the experiments of Fommasi-Crudeli.

The Treatment of Internal Animal Parasites forms an extended chapter by F. A. Packard. In the treatment of *tréma solium* he recommends pomegranate, aspidium, and pepo. Brayera, kamala, turpentine, thymol and naphthalin are mentioned. He especially urges the careful preparation of the patient, which should include a fasting of twelve hours. The removal of cestodes should be looked upon rather as a medical operation than as the assured result of the administration of any drug, and the details of the *accouchement* should be most carefully effected.

James Stewart discusses Gout, Rheumatism, Rheumatoid and Gonorrheal Arthritis, and Rickets. He admits at the outset that we have no real knowledge of gout, and he discusses the question of diet in a most conservative manner, recognizing that every case requires special study. The prognosis in gonorrheal rheumatism he pronounces bad, but that of rheumatoid arthritis is considered to be favorable.

The latter half of the book is devoted to a consideration of the diseases which affect various organs and systems. Ernest La Place, Diseases of the Mouth, Pharynx, Esophagus, and Contiguous Parts, C. G. Stockton, Diseases of the Stomach, and Duodenal Ulcer, W. W. Johnston, Diseases of the Intestines, and Acute Peritonitis, W. C. Dabney, Diseases of the Liver and Pancreas, E. E. Graham, Infant Feeding, Dentition, and the Digestive Disorders of Infancy, J. N. MacKenzie, Diseases of the Upper Air-passages, I. N. Danforth, Diseases of the Broncho-Pulmonary Apparatus, A. L. Mason, Diseases of the Pleura, F. Forchheimer, Diseases of the Heart, W. Osler, Diseases of the Blood and the Ductless Glands, J. Tyson, Diseases of the Kidneys, J. T. Eskridge, Nervous and Mental Diseases, S. Brown, Diseases of the Muscles, F. X. Dercum, Diseases of the Nerves, J. H. Lloyd, Diseases of the Spinal Cord, W. Smikler, Neurasthenia, Hysteria, Traumatic Neuroses, Epilepsy, and Chorea, G. Hinsdale, Tetany, Occupation Neuroses, and Paralysis Agitans, J. C. Wilson, Migraine, F. A. Packard, Diseases dependent upon External Heat, and Accidents caused by Electricity, J. K. Mitchell, Disorders of Sleep, C. K. Mills, Diseases of the Brain, J. B. Chapin, Diseases of the Mind, H. W. Stelwagon, Diseases of the Skin, and T. Parvin, Pregnancy and its Disorders.

The work on the whole is cast upon somewhat different lines from the average work on therapeutics. It is the joint production of forty-two contributors. Necessarily there is some overlapping and want of symmetry, but not to such an extent as to mar the book. The greatest excellence of the work is found in the directness with which the writers have approached their tasks.

Nowhere is a large number of drugs mentioned each writer has contented himself with a statement of the treatment that has been most efficient in his hands, and with such brief mention of other methods as was needed to complete the text. The work is pre-eminently practical, dealing with disease as it is found at the bedside. Not alone is the treatment of disease given but in most cases this is preceded by a discussion of etiology and pathology just sufficient to lay the foundation for the therapeutic deductions. Taken all in all the work is one of the most valuable of recent therapeutic productions.

THE FUNDUS OCULI WITH AN OPHTHALMOSCOPIC ATLAS. By W. Adams Frost, F.R.C.S., Ophthalmic Surgeon. St. George's Hospital Surgeon to the Royal Westminster Ophthalmic Hospital. Macmillan & Co. New York. 1896.

This beautiful volume so long talked about, has at last made its appearance. The work is remarkable in the beauty, variety, and fidelity of execution of the chromo-lithographic reproductions. It is divided into two sections, the first being a discussion of the different conditions arising in the back of the eye, the second being made up of the colored plates.

The first section is divided into a physiological and a pathological part. Nowhere has there appeared such a complete and thorough treatise on the variations of the normal fundus, nearly one hundred pages of the text and forty of the drawings are devoted to this subject. It is this particular feature that makes the work unique and invaluable. Nearly every variety of ordinary congenital anomaly is pictured and discussed. In the second part of the first section, devoted to a treatise on pathological conditions, the value of the book is apparent in the selection of the subjects, those conditions being discussed which are most commonly seen.

Of course, the great interest of the book centres in the plates, despite the fact that Mr. Frost insists that the plates are only to illustrate the text and not the text to describe the plates. There are forty-two plates containing one hundred and seven figures. Without exception these plates are the best that have ever appeared. Not even the plates of Jaeger as a whole exceed them in beauty and truthfulness. Mr. Frost properly insists that the plates should be viewed by artificial light, as they were painted under such a light. The artist, Mr. Head, deserves the highest praise for his skill. Those who have tried to make colored drawings of the fundus will appreciate the success of his work.

Attached to each plate is a description of the condition found, with much other data that is important. Many of the cases were followed for years by Mr. Frost, and changes noted are recorded in these descriptions. Much information concerning these plates is embodied in the text in the first section.

Throughout the first section there are scattered forty-six excellent half-tone drawings, illustrating different conditions.

The publisher's part of the work leaves nothing to be desired. As before mentioned, the chromo-lithographs have never been excelled. The text is large and clear and the paper excellent.

GENIUS AND DEGENERATION. By William Hirsch, M.D. New York: D. Appleton & Co. 1896.

The present volume is an outcome of the furor created by the appearance of Nordau's *Degeneration*. The controversy between Nordau and Hirsch re-

minds one very strongly of the newspaper controversy satirized by Thackeray in *Pendennis*. "The two Irish controversialists of the *Dawn* and *Day* are the best friends in the world, in spite of their newspaper controversies." The impression made by the present work is that had Nordau written on either side of the subject Hirsch would have written on the other. Hirsch has all the mental limitations of Nordau, with much less originality and much poorer literary style. The book has a very pragmatic schoolmaster tone. It shows either a less acquaintance with non-German literature than Nordau's, or a more contemptuous ignoring of it. The egotism of the book is extreme. Its philistinism is only possible in a certain class of German university professors. This is nowhere better illustrated than in the discussion of the difference between the methods of work of Schiller and Goethe. Hirsch turns all notions of the two poets topsy-turvy, and ignores, for this purpose, some of the best proven facts in their history. The book is badly translated, probably because of the stiffness of the style of the author. Among the remarkable specimens of English produced is the following: "Society has also to thank modern researchers into the causes—the etiology—of those diseases." The appearance of this work in an English edition is not creditable to the firm which produced it. More than one American alienist has produced abler answers to Lombroso and Nordau which are accessible to Dr. Hirsch, and of which he has in some instances seemingly made use without due acknowledgment. There have been several critiques of Nordau which have been extremely weak, but, considering its pretentiousness, this book in its weakness outdoes them all. It is, of course, well issued by the publishers.

ANATOMY, DESCRIPTIVE AND SURGICAL. By Henry Gray, F.R.S. A New Edition, thoroughly revised by American authorities, from the thirteenth English edition. Edited by T. Pickering Pick, F.R.C.S., with 772 illustrations, many of which are new. Pages 1250. Philadelphia and New York: Lea Brothers & Co. 1896.

Gray's *Anatomy* may well be called one of the classics of the English-speaking medical profession. Since its first appearance in 1858 it has steadily maintained its place and continued to grow in favor, the successive editions giving evidence that the author was outgrowing his narrow British surroundings and learning to appreciate the labors of the Continental anatomists. In the present volume justice is done to Sappey, Gegenbaur, Henle, and others on the Continent of Europe. It is to be regretted, however, that in this new American edition recognition has not been shown the labors of American cerebral anatomists who are widely known as authorities both in England and on the Continent. For this, both the American and English editors are responsible. The recent researches on the neuron certainly demand more attention than they have received. The American editors have not shown the insight into the needs of the student which was to have been expected of them. The sections on the Brain, Teeth, and Abdominal Viscera have been rewritten.

The book is magnificently printed and bound.

PROGRESS OF MEDICAL SCIENCE

MEDICINE

UNDER THE CHARGE OF JAMES B. HERRICK, A. B., M. D.,

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Rapidly Fatal Acute Congestion of the Lungs —

Cecil Musgrave reports (*The Lancet*, Oct 3, 1896) the case of a man aged 54 years who, in a condition of seeming good health and after a morning bath, tricycled some twelve miles on the afternoon of a day characterized by a moist atmosphere and a cold wind. Upon his arrival home at 7 P. M. he complained of "wheezing on the chest" and sent for medical aid. At 7.30 he was sitting propped up upon a sofa, breathing rapidly and laboriously—36 to the minute. The face and hands were cyanotic, and the skin was bathed in a cold, clammy perspiration. Respiration was accompanied by a distinctly audible wheezing, and expiration was prolonged. There was no cough. Talking increased the distress. The patient complained of frontal headache. Pulse 136, somewhat small, regular, and compressible. The arteries at the wrist were distinctly but not excessively fibroid. Temperature 99.4°. The patient was immediately taken into the adjoining room and rapidly put to bed, and did not at first seem worse for the exertion. On examination the chest was found to be rigid and deficient in power of expansion. The heart's impulse was neither visible nor palpable. Fine fremitus was felt all over the chest, front and back. The percussion note was high pitched, but resonant everywhere. The breath sounds were loud, and the expiration was harsh and prolonged. There were numerous fine, moist, subcrepitant râles audible all over the chest, even in front, but they were most numerous at the lower halves at the back. The heart sounds were fairly loud, of good quality, and regular. There was no murmur, no edema of the legs, and no ascites. The patient almost immediately became worse. He was obliged to sit up in bed, and the dyspnea increased. He commenced to cough paroxysmally and expectorated large quantities of very frothy serous fluid, stained a light pink. The cough in a few minutes time became almost convulsive in violence and the patient rolled himself about uncontrollably while the cyanosis deepened. After a short absence in order to write a prescription, the physician found him very much worse, coughing was ceasing, and the

cyanosis was still deeper. The mental condition was becoming drowsy and apathetic. The pulse was still regular and full, but slower. Ten minims of brandy and one-fiftieth of a grain of strychnine were injected subcutaneously, but without the slightest effect. The patient failed to rally and passed almost immediately into complete unconsciousness. Respiration became very irregular, infrequent, and shallow. Frothy expectoration poured from the mouth with each gasp. The pulse remained regular, 70 to the minute. Strychnine was again injected, but in a few more minutes respiration entirely ceased, within one hour of the first symptom noticed by the patient. The pulse beat for quite a minute after the last breath.

The writer thinks there was no doubt of the presence of intense congestion of the vascular tissues of the lung, and that death occurred from asphyxia as the direct result of mechanical blocking of the tubes by the excess of secretion. The intensity of the process was, however, certainly unusual, and the question of causation is obscure. Taking it for granted that interstitial nephritis was actually present, such an acute process does not approximate to the usual form of edema of the lung associated with this disease, and, moreover, if this were the actual cause it would be none the less remarkable as the only present symptom of the malady. The author thinks the real cause lay in exposure to a raw atmosphere, of lungs already in a condition of slight catarrh, and that the effects of exertion, and possibly the presence of chronic renal disease, were contributing factors.

Serum Diagnosis of Typhoid Fever.—

In 1894 Pfeiffer found that if a bouillon culture of the cholera bacillus were injected into the abdominal cavity of a guinea-pig, and at the same time there were injected the serum of another animal immune to cholera, the spirilla lost their motility, underwent certain morphological changes, and finally disappeared in the peritoneal fluid. He later announced that the same reaction was found with the typhoid bacillus, and in this way a differentiation could be made between the colon bacillus and that of typhoid. In 1895 it was announced by Gruber that the reaction could be obtained in a test tube as well as in the peritoneal cavity of a guinea-pig. If to a bouillon culture of bacilli, a few drops of serum from an animal immune against typhoid be added, certain definite changes take place if the bacilli are true typhoid organisms: the upper portion of the liquid becomes clear, and the bacilli become agglutinated and

drop as a sediment to the bottom of the tube. If the suspected organisms are not typhoid, no change is noted.

Widal (*La Semaine Médicale*, June 26, 1896) has made a practical application of these facts in the diagnosis of typhoid fever. Taking a bouillon culture of bacilli known to be typhoid, he adds blood serum from a patient suspected of having typhoid fever. If the case is one of typhoid, the peculiar agglutinative action is seen. In diseases other than typhoid the reaction does not occur. Further, he has very materially simplified the test. He finds that if to a mixture of typhoid bacilli in the hanging drop, or even upon a plain glass slide, the serum from one or two drops of blood of a typhoid patient be added, there can be seen under the microscope the loss of motility in the previously active bacilli and they are found within a few minutes to gather in clumps. Rarely does it take longer than sixty minutes for the reaction to appear.

A still further advance was made when Widal found that if dried blood were moistened with a few drops of water the reaction could be obtained from this blood as well as from the serum of the fresh specimen. Independently also, Dr Wyeth Johnston of Montreal made the discovery of the agglutinative property of the dried blood. The Montreal Board of Health announces that it will furnish a diagnosis free to any physician who will send a few drops of blood dried on sterile paper.

A most interesting and conclusive test of the practical working of this method of diagnosis was made by Dr Johnston at a meeting of the American Public Health Association at Buffalo, September 15, 1896 (*New York Medical Journal*, Oct. 31 1896). Dr Johnston had received from Montreal samples of dried blood from six patients, without knowing anything as to the nature of their various illnesses, by means of the reaction just described he made the correct diagnosis in each one of the six cases—that is, telling which cases were typhoid and which not. Three of the cases were typhoid, one malaria, one enlarged glands of the neck, one heart disease.

In Chicago Dr Louis Dysart (meeting of Chicago Pathological Society, Nov. 9, 1896), of the Cook County Hospital, has investigated the blood in about one hundred and seventy-five cases by the microscopic method of Widal. In eighty-nine cases of unquestioned typhoid he found positive reaction. In over fifty cases of other diseases of varied character the reaction was not found. In two cases of typhoid fever, repeated examination or extreme care in making the test was found necessary. In three cases—one of acute articular rheumatism, one of chronic rheumatism, and one of malaria—the

clumping reaction was met with. Possibly, as Dr Dysart himself suggests, more accurate tests with solutions of definite strength might give different results. Should, however, his results be found true by others, and should it be proven that in some diseases not typhoid the reaction is met with, it will consign the serum test for the diagnosis of typhoid fever to the same category as Ehrlich's diazo-reaction in the urine, as confirmatory rather than of positive value.

The announcements already made regarding the serum diagnosis of typhoid open up a wide field for investigation. That the reaction has a certain value in diagnosis has already been proven. But many questions have yet to be determined. Is the reaction found in every case of typhoid? If so, how early in the disease? Also, how late may it be met with? Is the reaction ever found in any other disease than typhoid fever? Can similar reactions be obtained in other infectious diseases due to motile organisms? Can morphological changes be noted in non-motile organisms, so that an analogous reaction can be made use of in the diagnosis of diseases produced by these organisms? Can methods practical and easy of application be found, so that the tests can be made at the bedside or in the office, or must they be submitted always to the trained bacteriologist?

Acute Ascending Myelitis Complicating Measles.—

W. A. Ellison reports (*The Lancet*, Oct 17, 1896) the case of a schoolboy aged 14 years, of nervous and somewhat morbid temperament, attacked with measles on March 30, having been during the day in school and, presumably, in his usual health. The following day the rash came well out all over his body, and during the succeeding night he had a sharp attack of diarrhea and vomiting, which subsided next morning, April 1. The patient exhibited all the usual signs of a well marked typical case of measles, the temperature had been up to 104° , but fell below this during the day. On the 2d the symptoms declined, the boy reported himself as feeling comfortable except for pain in his back, and chatted with his parents, the evening temperature was 99° . On the 3d the temperature was normal, the patient informed his mother that he had passed no urine since the previous evening, and though this did not seem a very unusual or remarkable circumstance he was evidently troubled in his mind about it, later in the day he complained of vague pain about his body and legs and declared his conviction that he was going to have influenza, in the afternoon, though the urine was still

retained, the bladder was by no means distended, in the evening a dose of castor oil was given in the hope that the urine might be passed when the bowels acted, the oil did its duty in due course, but little or no urine was passed, and at 11 P M a catheter was used and about half a pint of urine was drawn off. The boy bore the catheterization with what appeared to be extraordinary equanimity, and afterwards said he was fairly comfortable, but had "sort of influenza pains" in his toes and legs. The temperature was 103.4° . The patient spent a restless night, and on the 4th at 9 30 A M he was found to have complete paraplegia with absolute anesthesia from the toes up to the axillæ where there was very slight sensation. Thoracic movement was much impaired the superficial reflexes about the thorax and the abdomen were very slight, and the reflexes of the lower extremities were entirely absent. The temperature was 103.4° , but by 11 30 A M it had risen to 104.4° and the patient was drowsy and complained of pain in the hands and forearms, and the grasp of both hands was decidedly weak. The catheter was passed. At 2 P M the temperature was over 105° and motions had been passed unconsciously. At 5 P M he was drowsy but conscious, the speech was not affected the temperature fell slightly, but at 8 P M it had risen to 107° and the patient was almost unconscious. There was absolutely no movement of the thorax, the respirations were 32 and entirely abdominal. At 11 P M they numbered 46, and coma had supervened. At 2 A M on the 5th the respirations were 50, the temperature 107.5° , and the patient was still able to swallow. At 5 20 A M the temperature, taken immediately after death, was 109.2° .

This unusual and fatal ending of one of the exanthemata raises an important question as to the specific character of Landry's paralysis. Undoubtedly these cases of acute ascending inflammation may occur in the course of any infectious disease. It is to be regretted that a post mortem examination was not made and bacteriological studies of the central and peripheral nervous systems

Idiopathic Fibrinous Bronchitis —

Sokolowski (*Deutsches Archiv für Klin Med*, bd lvi hefte 5-6, 1896) describes four cases of idiopathic fibrinous bronchitis. One was a typical case of chronic fibrinous bronchitis running an afebrile course, with the general condition but little altered for a long time and with the absence of marked physical signs in the lung, but with expectoration from time to time of the characteristic fibrinous masses from the bronchial tubes. Death occurred at the end of

about four years. One was a case of fibrinous bronchitis occurring in connection with tuberculosis.

Two cases were apparently primary bronchitis of an acute order. The first was in a physician, 30 years of age, who from time to time had suffered with a dry bronchial catarrh. On the 28th of September, 1894, he was taken suddenly with an attack of dyspnea. These attacks recurred several times in the course of a few days. There was a dry cough, and whistling râles were heard over the chest. Respiration was rapid. On the 2d of October there were severe chills. The attacks of cough increased in severity, the temperature was elevated from one to three degrees. The general condition of the patient rapidly grew worse. Within a few days, long fibrinous masses were expectorated, and these were found to contain a multitude of cocci. Later a muco-purulent discharge was noted in which the fibrinous masses were found. The general condition of the patient became worse, the pulse varied between 120 and 140, from time to time there was marked cyanosis, there were evidences of cardiac insufficiency. In the lungs were subcrepitant râles, with whistling sounds. No dullness was detected on percussion. Examination of the sputum for tubercle bacilli was negative, but there was always an abundance of cocci of various forms. Culture experiments showed the cocci to be the staphylococci *pyogenes*, *albus*, and *aureus*. No elastic fibres were found. In spite of an unfavorable prognosis the patient improved and by the end of October had fully recovered.

The fourth case was also one of acute onset, with symptoms resembling somewhat those of asthma, and with favorable outcome.

The conclusions arrived at by Sokolowski are as follows:

1. Acute fibrinous bronchitis is a disease of the type of a pure infection, and possibly the chief cause is the staphylococci *albus* and *aureus*. Typically acute cases are rare. The lighter forms probably occur not infrequently. These lighter forms can be easily overlooked and confused with bronchial asthma, with which they seem to have a certain clinical relationship.

2. The so-called chronic fibrinous bronchitis is as yet a hidden process with an etiology entirely different from that of the acute form—a process which is identified with the acute form solely because of the characteristic expectoration, which can also be present in other diseases, as tuberculosis, heart disease, etc.

3. Pulmonary tuberculosis appears to play a very subordinate rôle in the etiology of chronic bronchitis.

Angina Pectoris as a Symptom —

D W C Hood (*The Lancet*, Sept 26, 1896) gave an exceedingly instructive lecture on this subject before the West London Hospital. He said "If we look upon the paroxysm as but a symptom, and divide into clinical groups those cases in which it may occur, we shall be in a better position with regard to our remedies. Angina pectoris should be regarded much in the same light as 'headache'. Although we are fully aware that headache may be a symptom of direct import, of momentous pathological omen, still it is but a symptom. The same may be said for albuminuria. A few years ago all cases of albuminuria were doomed, but we know now that such universal condemnation was uncalled for. A few years ago the fact of a patient having a bruit was sufficient to warrant the most unnecessary, most harmful treatment as regards exercise and general tenor of life. In fact, 'treatment' was an important agent in producing such conditions as might favor an attack of fatal angina. We know that there is a numerous class of patients suffering from organic valvular disease who live far healthier, happier lives when allowed to tax their hearts and circulatory apparatus in a manner which to our forefathers would have appeared to verge on madness. Let us, then, regard 'heart pain' as but a finger post calling our attention to difficulties attending the dynamics of the circulation. Let us study the class of cases in which the symptom is apt to declare itself. Depend upon it the more we do so, the better we shall be able to give such advice as may ward off the terrible paroxysm of angina pectoris."

Influence of Mitral Lesion on Pulmonary Tuberculosis —

J E Graham (*Montreal Medical Journal* September, 1896) contributes an interesting literary historical study of this subject. He gives many quotations from the great pathologists to which he adds several cases of his own supporting the view that mitral lesions exercise a favorable and preventive influence in the development of pulmonary tuberculosis.

If the condition of the lung which results from mitral lesion is a barrier to tuberculosis, can we without injury to the patient bring about a somewhat similar condition in those who do not suffer from heart disease? It would be out of the question to induce passive hyperemia of the lungs even if we knew how it might be brought about. An active hyperemia would no doubt have a similar effect, and we are acquainted with several methods whereby it can be induced.

The writer has attempted to find out the condition of the lungs of those who live in high altitudes, and comes to the conclusion that the conditions are not unlike those produced by mitral disease. From this pathological study he draws the conclusion that the most important factor in the treatment of pulmonary tuberculosis is chest exercise by which the pulmonary apices are expanded and active hyperemia induced.

Cardiac Percussion in Various Positions.—

Gumprecht (*Deutsches Archiv für Klin Med*, bd lvi, hefte 5-6, 1896) reports the result of examination of the heart in a series of patients. He finds great advantages, in many cases, in examining the patient in the "leaning forward" position. The conclusions he reaches are

- 1 The absolute cardiac dullness is, in the leaning-forward position of the patient, increased in area, intensity, and resistance.
- 2 While the absolute cardiac dullness in dorsal decubitus is frequently absent in consequence of pulmonary emphysema, or gastric or intestinal tympany, in the leaning-forward position it is always demonstrable.
- 3 By means of percussion in the leaning-forward position a number of otherwise unrecognizable cardiac hypertrophies can be diagnosed, particularly the left-sided hypertrophy of old age (arteriosclerosis, contracted kidney) that is masked by emphysema. Less regularly right-sided hypertrophies are recognized.

SURGERY

UNDER THE CHARGE OF WELLER VAN HOOK, A.B., M.D.,
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New Device for Intestinal Anastomosis —

Dr J. Frank, of Chicago, publishes in the *Medical Record* of October 3, 1896, an account of a new contrivance for intestinal end-to-end anastomosis. Dr Frank states that in his opinion an ideal anastomosis operation should embrace the following factors:

- 1 Quickness of operative procedure, as patients demanding this kind of surgical work are generally in a state of severe shock, and every minute saved is to their benefit.
- 2 Accurate adaptation of the severed or injured intestinal ends, with enough juxtaposition to insure sufficient surface for adhesive purposes.

He believes that in the construction of a proper device for this purpose, three points should be aimed at

- 1 To select material which can be safely left in the intestinal canal,
- 2 To perfect a time-saving device, and
- 3 One which is simple in application

The apparatus consists of two decalcified bone collars, with six needle hole perforations at the apex or shoulder of each collar, and one piece of ordinary pure gum rubber tubing seven-eighths of an inch in length and five sixteenths of an inch in diameter, the kind used for drainage. It is prepared for use in the following manner. A collar is slipped over a piece of rubber tubing of the dimensions stated until the apex is brought to a level with the end of the tubing, when an ordinary medium sized curved needle, threaded with No 8 braided silk, is carried through each opening and tied. This fastens the collar to the tube. The other collar is next fitted snugly to the one already fastened, and is then in like manner sewed to the other end of the tube. The apparatus is now ready for insertion. The rubber tubing to which the collars have been sewed, being hollow, serves for the passage of the intestinal contents after being placed *in situ*.

It will be observed that the bases of the collars which are formed into a broadened rim, are being held firmly in apposition through their entire circumference. Now the intestinal ends are brought over each collar and crowded between the apposed ends of the two. Of necessity the latter are forced apart and the rubber tube is put upon the stretch, affording an adequate amount of pressure to cause a necrosis of the interposed intestines. The collars dissolving in due course of time, only a small piece of rubber tubing is left in the intestinal canal to pass off with the feces.

A median incision from three to four inches in length is made either above or below the umbilicus, the small intestine is drawn out through the wound, and the part to be excised is gently freed of its contents by drawing it between the thumb and index finger when an intestinal clamp is placed at each end of the portion to be cut away. Care being taken not to cut too close to the clamp, for if this is done there will not be enough gut to bring over the collars, which will necessitate the removal of the clamp farther back. The main mesenteric branch supplying the excised portion is first ligated with a No 8 silk suture. From two to five inches of the gut may be resected according to the fancy of the operator.

Upon severing the intestine, it will be observed that there is an

eversion of the edge of the bowel and also a contraction, producing a circular constriction at the end of the intestine, this can be easily overcome by inserting a finger into the lumen of the gut and retaining it there for a minute or two, thus producing a temporary paralysis and allowing a much easier manipulation of the parts, this stretching of the gut must be gently performed, otherwise the peritoneal covering will split longitudinally. A straight or curved needle threaded with No 8 silk is used for inserting Dr Murphy's puckering string (a description of which can be found in the *Medical Record* for 1892, page 673) to fasten the intestine about the rubber tube after the former has been slipped over the collars. The puckering string is similarly inserted into the other intestinal end, and the bone collars, having been previously prepared as described, are taken out of the absolute alcohol in which they were placed immediately after being sewed to the rubber tubing. The operator slips an intestinal end over one of the collars to the line of junction, at the same time gently spreading the collars apart to facilitate access to the gut. An assistant takes charge of the ends of the puckering string, and when the gut has been brought over the collar he makes one knot and draws down until his puckering ligature strikes the rubber tubing, which he will perceive by the resistance offered, the tube will not generally permit a too tight drawing of the puckering ligature, on account of its resiliency, but to make absolutely sure that the tube is patulous, the end of a forceps or sterilized nail may be passed through the lumen, if this is found pervious, the assistant finishes the tying of the puckering string. The other intestinal end is then slipped over the remaining collar and also tied. Of course, at this stage nothing can be inserted by which to determine that the tube is not shut off, but, after having tied one side, the assistant will positively know when he strikes the tube. The ligature is cut off short and the clamps are immediately removed, when the operated portion of the bowel will be slowly distended with gas. An interrupted or continuous Lembert suture should be taken around the border with an intestinal needle, threaded with No 2 silk, which makes the work more secure.

The rent in the mesentery may or may not be sewed, in those cases that were sewed, catgut was used. Any bleeding vessels should be tied with catgut. The intestine is returned into the abdominal cavity as nearly as possible in a straight line, the site covered with omentum, and the abdominal wound closed in the ordinary manner. The wound is powdered with iodoform, and a collodion dressing applied, gauze and cotton are placed over this, and then the bandage.

Excision of the Breast for Malignant Disease —

Dr Herbert Snow, of London, discussed before the Section of Surgery of the British Medical Association, at its last meeting, the subject of excision of the breast for malignant disease, his remarks being based upon a study of three hundred cases. Some of his conclusions are somewhat at variance with those entertained by American surgeons. He lays special stress upon infection of the bone-marrow, which he regards as the great obstacle to radical cure by operation. This infection, he maintains, takes place in all ordinary cases within six months of inception, frequently earlier, its symptoms do not appear until within the second year, and may not be accompanied by nodular deposit or other palpable evidence of cancer for five to six years more. In the class of cases known as "atrophic," the condition may be delayed for several years.

Hence, these latter excepted, apparent immunity from recurrence for three years is a wholly inadequate basis on which to pronounce the disease radically extirpated, unless insidious marrow symptoms are also excluded by careful examination or unless there is good reason to believe that implication of the marrow has been prevented by the promptness and thoroughness of the operation of excision. The most important practical point in excision of the female breast is a wide dissection of the subcutaneous connective tissue around the diseased organ from sternum to axilla, from the subclavian fossa to the cartilage of the seventh rib. The writer adds that there is no advantage whatever to be gained by the destruction of an extensive skin tract. In every single instance he has yet met, the utmost benefit that surgery could confer was perfectly compatible with the union of the greater part of the wound by first intention.

Spanish Hospital Methods in Cuba —

Under this heading the *Pall Mall Gazette* publishes the following

Surgeon Colonel Murata, of the Japan Red Cross Society, who was sent by the Japanese Government to note the operations of the Spanish Army Medical Staff and Ambulance Corps in Cuba, has furnished a report to the authorities in Tokyo. He writes: "I was present at the inspection of sick wards by Dr Creillac, a surgeon colonel in the Spanish Army specially sent by the Government about three months ago to take charge and organize this department. He is said to be one of the best surgeons in Spain. In the hospital we saw over seventy men with wounds, not one yet in the first stages

of recovery The inspector went through the whole hospital in an hour and twenty minutes, carrying a pair of scissors and a probe, and wearing full uniform, with sleeves not rolled up, neither did he go through the form of disinfecting his hands or instruments In examining a patient he just threw his instrument carelessly on the filthy bed-quilt, and took off the bandages or had them removed by an attendant, probed or cut in a scrambling, slap-dash manner, without apparently the least consideration for the patient The nurses were dressed loosely in dirty, dark-blue garments, and their hands and feet were filthy enough to sicken any one No such thing as disinfection of person or clothing seemed to be known to them I noticed six patients with wounds near some joint, and in every case the joint was inflamed on account of suppuration of the wound One man with tetanus caused by a piece of rotten wood getting into his foot was put side by side with other patients in one room These few instances are only a small part of the horrible sights I have seen there There is a degree of inhumanity in the Spaniards which accounts for the intensity of the Cuban hatred towards them and the sympathy of Americans for Cuba Certain charitable persons of Havana recently organized a Red Cross Hospital and assisted the wounded both of Spaniards and Cuban rebels On seeing this, the Commander-in-Chief of the Spanish Army ordered the hospital to be burnt down, and he put to death all the wounded Cubans found in the hospital Everything is dearer here than in New York, which is said to be the most expensive place in the world To live decently in Havana requires some fourteen to fifteen dollars a day In my opinion the advancement in medical knowledge of the Cubans, especially in Havana, is admirable"—*British Medical Journal*

Pedunculated Vesical Tumors —

Dr Max Nitze (*Centralbl für die Krankheiten der Harn- und Sexual-Organen*, bd vii, heft 7, 1896) describes, at last, the intra-vesical methods which he has practiced for a number of years in removing pedunculated vesical tumors Dr Nitze, who was one of the inventors of the cystoscope, has applied his mechanical genius to the construction of various forms of cystoscopic apparatus which enable the operator to perform complicated manipulations within the bladder at the same time that he inspects the vesical wall by means of a cystoscope Catheterization of the ureters was one of the early accomplishments of Nitze after the invention of the cystoscope, and now he goes so far as to remove with wire snares tumors of the

bladder which are suitably situated and attached by relatively small pedicles. The suares used are preferably heated by the galvanic current. The tumor having been brought well into view with the cystoscope, the loop is carefully pushed forward over the growth, tightened by means of screws and the current passed. The operation is completed in a few seconds in the hands of Nitze, who is wonderfully expert in the use of such apparatus. Nitze has also invented an apparatus for cauterizing the base of such tumors after removal.

Varicose Veins —

Schede's operation for varicose veins is described by Dr Vaughan (*Medical Standard* October, 1896). He claims that it is a radical and rational operation as it obliterates the dilated superficial veins and forces the blood into the deep veins which have the advantage of muscular compression to aid in propelling the current of blood, and thus prevents stagnation. The operation is performed as follows: "After making the parts aseptic and applying an Esmarch bandage, a circular incision is made around the leg ten to twelve centimeters below the knee joint, through the skin, superficial fascia, and superficial veins and nerves, down to the fascia covering the muscles, just as if a circular amputation were intended. The cut ends of the veins above and below, and any small arteries which may have been cut, are then picked up and tied with catgut, and the wound closed with a continuous catgut suture."

Surgery of the Subperitoneal Tissue —

Mr William Anderson (*British Medical Journal* Oct. 17, 1896) discussed before the British Medical Association the surgery of the subperitoneal tissue. We cannot do more than call attention to this article, which contains a number of very suggestive points, most of them not new in themselves but valuable because of their association with one another. The general view of the subperitoneal tissue as a whole is a valuable one to take, and doubtless in future this extensive mass of tissue will be considered in this way more frequently than has hitherto been the case.

Amputation of Tissues of Doubtful Vitality —

Dr A. I. Bouffler (*Railway Surgeon* Oct. 6, 1896) writes on the subject of the amputation of tissues of doubtful vitality. He pleads for delay in the amputation of all doubtful tissues, maintaining that oftentimes unexpectedly good results can be obtained under

Careful antiseptic management by leaving tissues which at first sight appear to be irretrievably injured. He lays great stress upon the use of hot antiseptic fomentations with elevation of the limb, relief of tension by incisions, the prevention of arterial engorgement by quieting the nervous and circulatory systems, the prevention of bacterial growth by the early removal of all necrotic tissue, and the mechanical removal of bacteria, with the prevention of the absorption of their ptomaines by a continuous drainage maintained by some form of constant irrigation or submersion.

Intestinal Anastomosis.—

Edmunds and Balance (*Medical Week*) prefer for intestinal approximation the Maunsell operation, which they regard as preferable to all other methods in which recourse is had to mechanical aids, whether of decalcified bone or of metal, especially for end-to-end anastomosis.

PATHOLOGY.

UNDER THE CHARGE OF ARTHUR R. EDWARDS, A.M., M.D.,
Professor of Therapeutics, Northwestern University Medical School, Attending Physician,
Cook County Hospital, Pathologist to Cook County, St. Luke's,
and Wesleyan Hospitals

The Etiology of Cirrhosis of the Liver —

Scagliosi discusses (*Virchow's Archiv*, bd 145, heft 3) the etiology of cirrhosis of the liver, especially in its relation to alcohol and the acute infectious diseases. Aside from the alleged frequent causal rôle of alcohol, he calls attention to the fact that a series of cases is constantly encountered in which the etiology of hepatitis is entirely obscure. Clinical observation demonstrates that in these cases neither alcohol, malaria nor syphilis is the cause of the hepatitis, especially in children and in the new-born. Many authors suspect that spices, coffee and other drinks taken in excess exercise an influence upon the liver analogous to that of alcohol. The experimental evidence on the subject of alcoholic cirrhosis of the liver is conflicting. For example, in Von Kahlen's experiments, 15,800 grammes of spirits were injected into a guinea-pig, and at the end of 158 days some fatty changes, and some extravasation of round cells about the portal vessels, were noted, but there were absolutely no cirrhotic changes, not even in the incipient stage.

Scagliosi has considered the relation of infectious diseases to cirrhosis of the liver, he cites the experiments of Wolff, who produced a marked cirrhosis of the liver in rabbits by the injection subcuta-

neously of fluids containing bacteria Roger proved experimentally that the bacillus *septicus putridus* injected into the lower animals would produce cirrhosis in from two to eight weeks Clinical evidence shows that cirrhosis often follows the infectious diseases, especially scarlet fever or measles Lauré and Honorat describe cirrhosis following inflammation of the bile vessels, angiocholitis Following the last epidemic of influenza many cases of cirrhosis were observed Kernig, Brun and Pilliet observed inflammation about the portal vein after puerperal fever and infectious enteritis Bichart observed the same changes after smallpox, Hanot and Gilbert, after cholera In tuberculosis and after typhoid, cirrhosis is often observed

The experimenter comes to the conclusion that alcohol or similar irritating drinks may produce a cirrhosis when the liver is weak congenitally, but that infection is the real cause of cirrhosis He tabulates the results of his experiments as follows First, alcohol influences the normal liver scarcely at all second, the lower animals react variously to different infectious agents, but in rabbits especially cirrhosis and incipient interstitial hepatitis can be caused thereby, lastly, if the process has not advanced far, the lesion may heal

Peritonitic and Pancreatic Degeneration —

Dr Benda, in the Society for Internal Medicine of Berlin, April 27 1896, demonstrated a specimen of multiple fat necrosis of the peritoneum with extensive changes in the pancreas The specimens were obtained from a woman, aged 23 years, whose peritoneum was diffusely covered with innumerable small foci of necrotic and fatty degeneration, there was a specially large focus of fatty necrosis in the parietal peritoneum and in the mediastinum The findings in the pancreas were of special importance, as the organ was altered through its entire extent and formed a large tumor characterized by its variegated color in its centre was a large hemorrhagic infarct, with multiple infarcts scattered here and there throughout the organ, only small areas of normal pancreas tissue remaining The case clinically was of special interest, presenting the following history

The affection began acutely, with severe abdominal pain, followed by coma closely resembling diabetic coma, namely obtunded sensorium and unusually forced, deep and rapid respirations The patient was cyanotic, and the urine showed albumin casts, and 5 per cent of sugar Stadelmann, who saw the case clinically diag

nosed it as one of diabetes mellitosis acutissimus and placed the acute diabetes in immediate causal relation with the pancreatic disease. The case suggested some acute infection, there being high temperature and no local findings.

A Rare Abdominal Tumor —

Eigenbrodt reports a case of abdominal tumor from an undescended testis. The case is of special interest in that it is the sixth on record, the other five cases having been published by Johnson, Spencer, Wells, Maydl, Von Kahlden, and Butjagin. For two months before operation the patient was suffering from fever, with pain in the lower part of the abdomen, at the same time he noticed a tumor in the abdomen, which grew very rapidly. On examination the tumor was found to extend from the navel to the symphysis pubis, it was hard and quite immobile. On the right side the testis was atrophic, on the other side absent. The clinical diagnosis lay between a neoplasm and peritonitis, probably associated with cryptorchismus. On laparotomy a large, very adherent tumor was found, which microscopically consisted of various histological elements, namely, soft sarcomatous tissue with epithelioid cells which showed a carcinomatous grouping.

No recurrence had taken place three years after operation.

BACTERIOLOGY.

UNDER THE CHARGE OF GEORGE H. WEAVER, M.D.,
Demonstrator of Bacteriology, Rush Medical College, Chicago

The So-called Slightly Virulent Diphtheria Bacillus of the Conjunctival Sac, and the Differentiation of the Same from the True Diphtheria Bacillus by Means of Behring's Serum —

Spronck (*Deutsche Med. Woch.*, 1896, No. 36) undertook to learn, by means of the specific protective property of Behring's serum, whether the diphtheria bacillus and those slightly virulent or non-virulent bacilli which resemble it are the same species of bacterium. Out of seven cultures from the pharynx, there were five which produced a local edema and general disturbance in the guinea-pig when injected subcutaneously. Guinea-pigs which had been injected with a relatively large dose of anti-diphtheritic serum were not rendered immune to the effects of these cultures, but the same dose of virulent diphtheria cultures was without effect.

He also experimented with three cultures of the bacillus,

resembling the diphtheria bacillus, isolated from typical cases of xerosis conjunctivæ. Subcutaneous injections, in guinea pigs of medium size, of one to three cubic centimeters of a 24-hours bouillon culture, produced edematous swellings which disappeared after forty eight hours, with loss of appetite, weakness, etc. Guinea-pigs which were rendered in a high degree immune to the diphtheria bacillus showed no increased resistance to the bacillus of xerosis.

The author concludes that the anti-diphtheritic serum is useful in differentiating the diphtheria bacillus from the slightly virulent xerosis bacillus. He thinks the results with the anti diphtheritic serum leave no doubt that the xerosis bacillus does not belong to the true species of diphtheria bacilli but should be classed with one or more distinct varieties of bacilli.

He does not claim to settle the question as to whether every bacillus which loses its effects in the presence of the protective property of the anti diphtheritic serum is the true diphtheria bacillus but leaves it to further research.

Whether the diphtheria bacillus with slight virulence is a common inhabitant of the conjunctival sac he thinks can be easily determined if all or most of the cultures possess sufficient virulence to allow of control investigations. He believes, however, that most of such are organisms which belong in the class of xerosis bacilli. He does not deny that the true diphtheria bacillus may be found in the conjunctiva in specific diphtheria and other infections and in the normal conjunctiva on rare occasions.

On the Xerosis Bacillus —

J. Eyre (*Journal of Pathology and Bacteriology*, July, 1896) gives a report of interesting studies upon the bacillus of xerosis conjunctivæ. Twelve cases were examined six being in males and six in females. Of the females two were classmates and the remaining four were members of one family—an interval of about a week was noted between the onset of the attack in the mother and the three children. The cases were characterized clinically by a number of small irregularly oval shaped, pinkish edematous bodies situated in the lower conjunctival fornix, and not encroaching upon the ocular conjunctiva. Injection of the conjunctival vessels, lachrymation, photophobia, inability to continue at work requiring close observation distress at night and when using artificial light, were among the symptoms.

In contrast to these cases he reports a case of true conjunctival

diphtheria The patient was a boy aged four years Both eyes were affected, the lids being painful, red, and swollen, and separable with difficulty owing to the brawny infiltration of the subcutaneous tissue The ocular conjunctiva was chemosed, the palpebral portion congested and thickened, presenting patches of a pale grayish-yellow membrane, which stripped off easily, leaving a raw bleeding surface

The differences between the xerosis bacillus and the diphtheria bacillus are given as follows

1 After inoculation of the secretion upon blood-serum, colonies of the xerosis bacillus do not appear within thirty-six hours, those of the diphtheria bacillus appear in sixteen to eighteen hours

2 When grown in neutral bouillon or milk, the xerosis bacillus never gives rise to an acid reaction, the diphtheria bacillus invariably does

3 When grown upon potato, the xerosis bacillus rapidly degenerates and dies, the diphtheria bacillus grows with more vigor and to a greater size than on any other medium

4 When grown upon 10-per-cent gelatin, colonies of the xerosis bacillus are not visible to the naked eye within forty-eight hours, the colonies of diphtheria bacilli can be recognized in twelve to twenty-four hours

5 The invariably innocuous nature of the bouillon cultures of the xerosis bacillus, when inoculated into the subcutaneous tissues of animals susceptible to the bacillus of diphtheria

As to the exact nature of the xerosis bacillus—whether it be a non-virulent and slightly altered species of the bacillus *diphtheriæ*, or a totally separate and distinct bacillus—it is impossible at present to decide

The Klebs-Loeffler Bacillus in Apparently Normal Throats and Noses.—

W H Gross (*University Medical Magazine*, October, 1896) presents an interesting report of some observations made in the Children's Hospital of Boston During six months ending June 1, 1896, culture examinations were made from the throats and noses of all cases entering the hospital, two cultures, twenty-four hours apart, being taken on admission, and subsequently repeated once weekly as long as the case remained in the house, unless the Klebs-Loeffler bacillus was found, in which case daily examinations were made until three successive negative cultures, twenty-four hours apart, were obtained The work was undertaken with the object of preventing outbreaks of epidemics of diphtheria, which in past winters had occurred in this hospital with most disastrous results

Out of 316 cases examined, 26 at one time or another showed the presence of the Klebs-Loeffler bacillus. Two of these had clinical diphtheria, so that out of 314 normal throats and noses, 7.9 per cent contained the bacillus of diphtheria. The average persistence of the bacillus on the mucous membrane was fifteen days, the shortest period one day, the longest 103 days. The nose was the principal habitat in 65 per cent and the throat in 35 per cent. The degree of virulence possessed by the bacilli in the various cases was not determined.

THERAPEUTICS

UNDER THE CHARGE OF N. S. DAVIS, JR., A. M., M. D.

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The Abuse of Digitalis —

W. T. English says (*Medical and Surgical Reporter*, Aug. 22, 1896) that digitalis is one of the most abused drugs of the materia medica. It appears that in the minds of a large number of the medical profession the pathological range of its application has no limitations. There is a very general want of agreement as to the conditions in which it is applicable, as well as the amount that should be considered a proper dose. Notwithstanding accepted theories and well established facts which should control its exhibition, digitalis has been exhibited in every malady in the catalogue of diseases, and is consequently made the subject of unwarrantable criticism and ever increasing abuse.

Because it is claimed that in digitalis we have a drug which increases the force of the heart and contracts the vessels of the periphery—except those of the kidneys—it is employed indiscriminately as an ideal diuretic in Bright's disease, notwithstanding the contra indications observable in capillary tension and cord pulse. Such irrational therapeutics can result in naught but harm. It seems almost foolhardy to use it in chronic nephritis accompanied with high peripheral blood pressure, as it usually is unless preceded by a short course of nitroglycerin to relieve the peripheral tension.

A fact that is not only forgotten but frequently ignored is that in normal conditions the heart muscle adjusts itself to the demands made upon it. In those whose vocations force them into the extremes of bodily exertion, the heart becomes muscular in proportion to the demands. In response to temporary or protracted influ-

ences that perturb the heart and induce over-exercise without diminution of tonicity of the myocardium, as in functional or reflex disorders, the same result follows. Digitalis is often administered under these circumstances to steady or quiet the cardiac tumult. In the author's opinion this is a flagrant abuse of a good medicine and an unpardonable sin against the heart. It is but an added goad to an already overworked organ. Moreover, if the stomach, whence the disturbing impulses often proceed, is already irritated, the presence of digitalis will augment the difficulties in geometric ratio by increasing nausea and heightening the cephalalgia and other symptoms of gastric distress. Cardiac arrhythmia of myopathic origin, or reflex, toxic, or nervous in its nature, cannot present a reasonable cause for employing digitalis. If it be exhibited in palpitation due to neurotic conditions, there will be a possibility of converting the curable disorder into an incurable malady.

One of the most universal abuses of digitalis is the habit of prescribing it for a patient without advising him to abstain from exercise while under its influence. There are very few physicians who have not been disappointed by its results from the counteracting influence of exercise. All patients taking digitalis should live in perfect physical and mental quietude, as otherwise there is danger of adding to the perils of the diseased conditions demanding its use.

In mitral regurgitation there is a time when the administration of digitalis achieves its greatest clinical good. The opportunities for its good action are often permitted to pass by on the one hand, and upon the other the drug is sometimes administered so prematurely that its most effective opportunities are lost. It must be remembered that in mitral regurgitation the two chambers of the heart are practically one, and increased vigor of the ventricle augments its suction power during diastole as well as its propulsive energy in systole. Through this dual service the engorged pulmonary circulation is unburdened and the anemia in front is also relieved. This is the only condition in which it can secure such results.

In aortic regurgitation it is sometimes employed in a thoughtless or careless manner. It is a dangerous medicine and often harmful in this valvular malady. If the diastole is increased and prolonged, the period of regurgitation and its force are augmented, and the difficulties multiply.

The only excuse for prescribing it in aortic stenosis is to give vigor to the myocardium when the tendency to dilatation is pro-

nounced. If it slows the action of the heart notably, it may add to the valvular systole or occasion tetanic contraction.

It is deplorable to see a well informed physician employing it in conditions of compensation. Many a case of benign hypertrophy has thus been goaded into myocardial weariness and weakness that disabled the heart from keeping up its work. In the absence of dropsy, in all cases where the urine is voided freely there is little, if any, call for digitalis.

Gualacol In Typhoid Fever —

H. G. McCormick says (*Medical and Surgical Reporter*, August 15, 1896) that when he entered upon his term of service in the Williamsport Hospital in 1894 he commenced the use of gualacol as a local application for the reduction of temperature. In typhoid fever, since then, he has had it applied 864 times—778 times in the hospital, and 86 times in private practice. These applications were made to forty three different persons about equally divided between males and females, with wide variation of ages. The greatest number of times it was applied to any single person was 78, and the least number of times once. The largest dose was twenty five drops and the smallest two drops. The greatest reduction of temperature was from 106.8° to 101° , in two hours, by the application of five drops with a corresponding reduction of the pulse rate from 136 to 110 per minute, the respirations falling from 36 per minute to 28. This patient, however, showed very great susceptibility to the drug, as the application of two drops reduced the temperature from 103° to 100.4° in one and one-half hours.

The effect of gualacol lasts from three to four hours, the more often it is applied, the greater the effect. When he first commenced the use of this drug he found that the sudden reduction of temperature caused chilling in a number of cases, but after he became more accustomed to its use chills rarely occurred. If it can be avoided, the temperature should not be reduced below 100° , and this is a matter which can easily be regulated after the applications have been made a few times, care being taken to commence with a small dose—say from ten to fifteen drops—thus gradually being increased if necessary until the temperature is reduced.

Gualacol when given internally does not markedly reduce the temperature. He has given as high as ten drops in a single dose to a patient without materially affecting the pyrexia while the same amount thoroughly applied to the skin would reduce the temperature to a marked degree.

He thinks guaiacol when applied locally in typhoid fever is certain to reduce the temperature, and with the care that a physician should always use in the administration of drugs, it is absolutely safe, chills will not occur if the temperature is not reduced below 100° , and no deleterious effects are produced upon the body by its use

It is easy to apply, can be used by any one competent to nurse a typhoid-fever patient, and there are no depressing effects following its intelligent use. As the case progresses, the dose can be gradually lessened

It is far superior to the cold bath, in that it can be used by one person. No appliances are necessary for its use that are not obtainable in any house. It is much more pleasant to the patient, and carries with it no horror to the family. Argument and persuasion with the family and friends are not made necessary. It is fully as effective as the cold bath. Patients are not subjected to the danger of moving. There is no complication such as hemorrhage, etc., that is a contra-indication to its use

When given internally it is one of the best intestinal antiseptics known, if not the best. By its use in typhoid fever the dry tongue and tympanites are abolished, digestion and assimilation rendered more perfect, and the probabilities of hemorrhage reduced to almost *nil*

Treatment of Acute Lobar Pneumonia.—

Charles W. Ingraham contributes to the *New York Medical Journal* of March 28, 1896, an article on the continuous application of a high degree of heat over the entire chest in the treatment of this disease. The "pneumonia jacket" consists primarily of a Canton-flannel jacket of a size suitable for adults. This has an exterior covering which buttons to the inner jacket, and to this are attached coils of rubber tubing in a manner designed to cover the whole chest. To prevent kinking at short bends, as well as stoppage from pressure, a coil of brass wire is first drawn inside the tubing. The exterior covering, with tubing attached, is made removable from the inner jacket, in order that it may be easily taken apart, cleansed, and disinfected. The tubing should cover both sides at least half-way back to the spine, it also covers the entire cardiac region, the stomach, and the liver.

By means of several feet of rubber tubing the jacket is attached to a small reservoir of hot water, the heat of which is sustained by an alcohol-lamp and kept at a uniform temperature by the aid of a

thermometer As the water circulates through the tubing it is finally carried to a reservoir at the foot of the bed The circulation of the water is governed by valves on the inlet and discharge tubes Before applying the jacket the chest should be enveloped in absorbent cotton, while directly over the cotton is placed the pneumonia jacket By first putting on the cotton, a higher degree of heat can be borne by the patient, as the cotton moderates the heat by securing slower radiation Then, too the jacket causes some sweating, which will be readily absorbed by the cotton The cotton also gives mechanical protection The water circulates through the jacket by force of gravity

The application of heat to the chest in acute pneumonia, as here described accomplishes several distinct objects in a very decisive manner

It hastens the various stages of the pneumonic process

The high degree of heat not only hastens the disease processes but sustains the vitality of the consolidated lobes

It effectually prevents further extension of the pneumonic process

It sustains lobular vitality, and consequently the lobe will not be so prone to chronic disease or to recurrent attacks of pneumonia

It prevents complications

It stimulates respiration strengthens the heart action, and favors the performance in a normal manner of the various pulmonary functions, as regards both oxidation of the blood and elimination of carbonic acid and other respiratory products

It relieves pleuritic complications

It controls temperature

GYNECOLOGY AND OBSTETRICS

UNDER THE CHARGE OF HENRY F. NIWMAN, A. M., M. D.

Professor of Clinical Gynecology in the College of Physicians and Surgeons, Chicago
Professor of Gynecology in the Post Graduate Medical School, etc.

Roentgen Rays in Gynecology —

Dr. A. Schucking (*Centralbl. für Gyn.*, May 16, 1896) comments upon the value of the discovery applied to gynecological and obstetric diagnosis as follows:

The method would be simplicity itself and the field for scientific investigation would be most extensive, if a recent communication in an English medical journal could be believed. In this paper the outline pictures taken by means of the x rays clearly show small

foreign bodies in the vertebral column of a man. Such exaggeration is bound to be discovered sooner or later. Thus far, with the aid of the largest Ruhmkorff's spark inductor, it has been impossible to penetrate muscular or other layers of tissue of more than fifteen centimeters' thickness in such a way as to obtain useful pictures. Some operators succeeded in securing good outline pictures of the extremities through the above-mentioned thickness, but only after exposure for nearly an hour. Thus far it has not been possible to photograph the lesser curvature of the stomach. One difficulty lies in the necessity for a long exposure. To obtain an outline picture of the hand, an exposure of half an hour is necessary, and for the abdominal organs a much longer time would be required, and, of course, the subject must be immovable during this time. During long exposure the vacuum tubes become useless, either because air enters the tube or by the consumption of the minimum of air that remained after the exhaustion. It is well known that not all of Hittorf's vacuum tubes are fit for these experiments. Often if a clear blue cathode light has been obtained and the glass plane opposite to the cathode disk fluoresces with the most beautiful greenish-white light, a satisfactory result is not obtained.

If at present we are unable to obtain pictures of the pelvis and of the pelvic organs, still it will be worth much to obtain pictures of the development of the fetus, and also of organs and tumors separated from the surrounding tissue.

Since writing the above the proceedings of the Medical Section of the Royal Prussian Ministry of War have appeared, and in them is to be found an excellent picture taken by transmitted light of a fetus *in utero* in the fifth month. This picture gives a perfect view of the process of ossification going on in the skeleton. The transparency of the hyaline cartilage is very clearly shown. The position of the fetus is well defined, and that is of great importance. The improvement in the instrument has been very great, and we are convinced that gynecology will yet receive its share of this great discovery.

The Transplantation of Ovaries.—

Dr Knauer (*Centralbl für Gyn*, May 16, 1896), under the direction of Professor Chrobak, has conducted a series of experiments upon rabbits. Four rabbits were anesthetized with ether, and under strict aseptic precautions their ovaries were removed and transplanted to other parts of their bodies. They all stood the operation well, and lived for varying periods afterward.

In two rabbits the ovaries were planted as follows one in the cornu of the uterus, and the other between the fascia and muscles of the abdominal wall. Unnecessary handling of the ovaries was avoided, and the sutures were passed through the covering and not into the ovarian tissue.

Since the operation three of the rabbits have died of intercurrent disease, the last one six months after the transplantation. The post mortem showed the ovary in the abdominal wall to be atrophied, but still living and readily distinguishable. The ovary implanted in the cornu uteri had not atrophied to the extent of that in the abdominal wall, upon its surface two Graafian follicles were readily recognized, one of them being of unusually large size and resembling a vesicle filled with blood. The microscopic examination showed that this ovary had been abundantly nourished and was performing its function. In the stroma were imbedded a large number of follicles in various stages of development.

In all of the rabbits thus far examined the results have been the same, namely that ovaries in rabbits can be transplanted to other localities remote from their normal places that they can be successfully implanted in muscular tissue as well as in the peritoneum, that ovaries thus implanted are not only nourished, but perform their functions, namely, to develop, mature and expel ova.

Whether transplanted ovaries can be nourished and perform their functions for a long time, and whether ovaries can be transplanted from one individual to another, will be the subject of another report.

A New Trachelorrhaphy Knife —

Prof Augustin H Goelet, of New York, employs a knife of peculiar construction for denuding the lips of the cervix in the operation of trachelorrhaphy (*American Journal of Surgery and Gynecology*, vol viii, No 10). He claims that the operation can be completed in one half the time that is usually consumed when scissors are employed, and that the surfaces to be approximated are more regular and even. With the knife each lip is denuded with one stroke, and no trimming is required afterwards to remove superfluous tissue. The knife, which is a double-edged pointed blade set at nearly a right angle to a firm shaft and handle, is made to transfix the cervix beyond the plug of cicatricial tissue and cuts it as it is drawn downwards, making a clean denudation. For inserting the sutures, he employs a round, full quarter curved needle.

with a flat spear-shaped point, which penetrates the dense cervical tissue with ease and never breaks. For suture material he uses silver wire or silkworm-gut only, believing that catgut or any other suture which is not absolutely impervious should not be used in the cervix. The chief advantage of silver wire and silkworm-gut is that the sutures may be left in the cervix for any length of time until complete union has taken place. Catgut is absorbed or loosens too soon, and is liable to absorb septic matter from the vagina and convey it along the suture tract. Chronicised catgut may be used for superficial auxiliary sutures.

A New Figure-of-Eight Pedicle Ligature —

Dr F Shimonek, Milwaukee, describes this new ligature in the *Journal of the American Medical Association*, September 26, 1896. He says "The following pedicle ligature is, so far as I know, original. I have used it with much satisfaction for the last nine months. It is an improvement upon the old Worlich ligature, because it can be quickly tied, whether it be used singly or as a continuous ligature, for very broad pedicles, only one knot is required, the threads cross naturally when passing through the pedicle. It is better than the Tait ligature because of its applicability

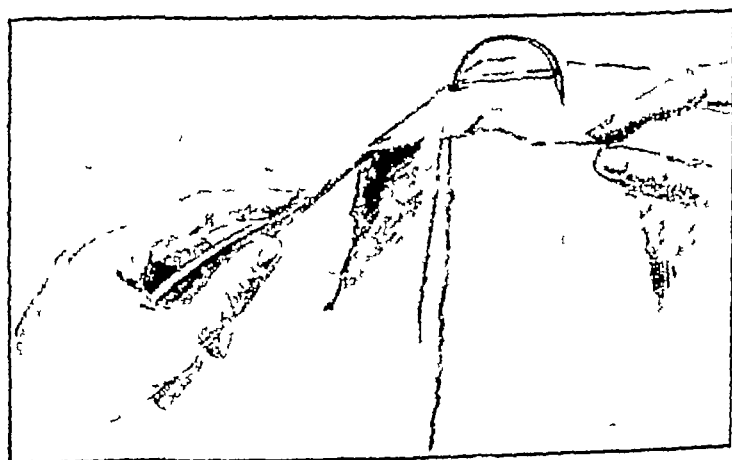


FIG 1

to any breadth of pedicle and because it can be safely tied without any trouble whatever. An armed needle is passed through the pedicle, as shown in Fig 1. That part of the ligature passing through the eye of the needle is withdrawn from it, as shown in Fig 2. We now have the needle and ligature passing through the same opening in the pedicle, and yet they are independent of each

other Take that part of the ligature corresponding to the handle of the needle, carry it half way around the pedicle, and pass it through the eye of the needle, as shown in Fig 3 Now withdraw

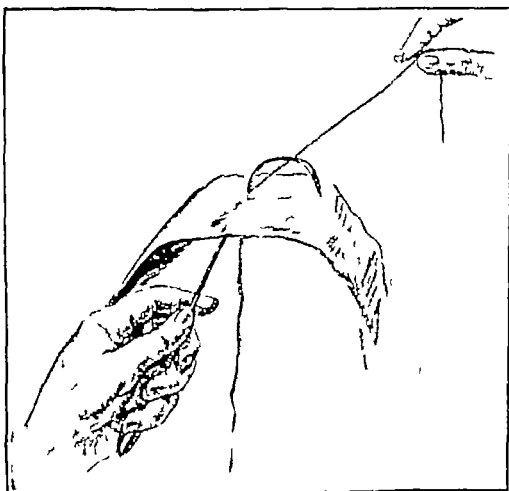


FIG 2

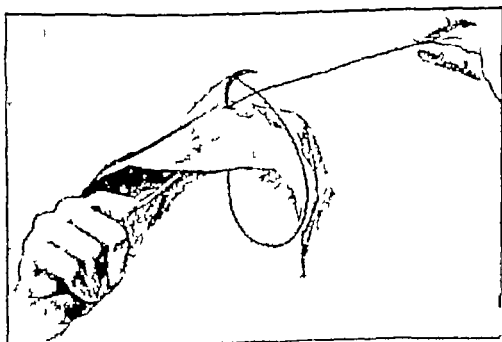


FIG 3

the threaded needle from the pedicle, thereby forming a loop upon one side of the latter, the ends passing and crossing through the same opening appear upon the other side and may be tied, as shown

in Fig 4, or, in a very broad pedicle that cannot be securely tied with one figure-of-eight, the needle may be passed through the pedicle at a distance of one-half inch or more, threaded with one of

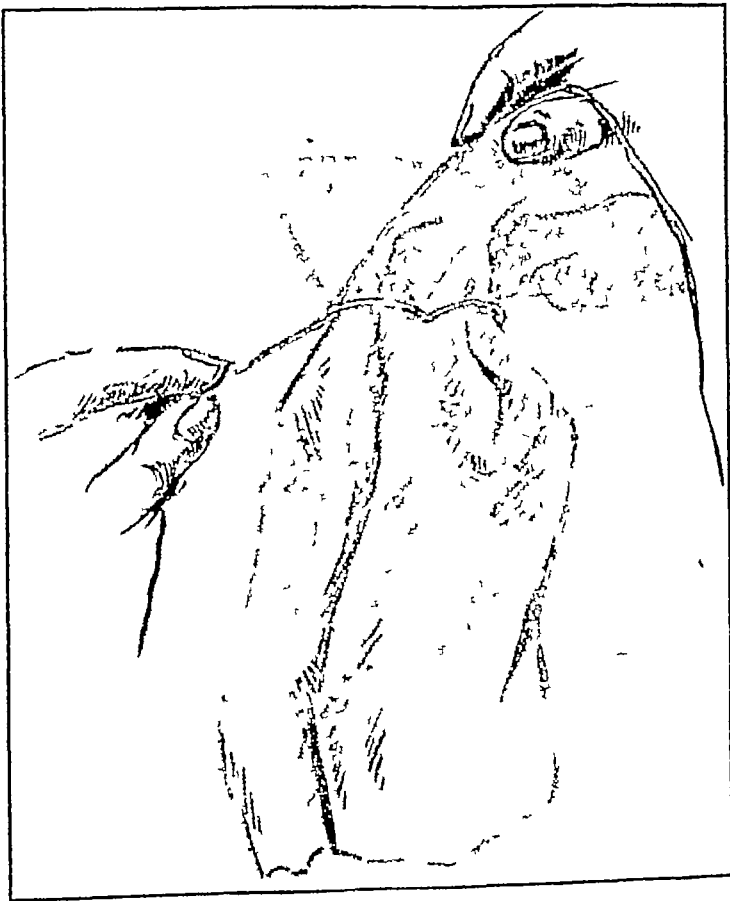


FIG 4

the free ends, then unthreaded at that end and again threaded with the other one, and so on, until the entire pedicle is encompassed and the free ends tied "

PEDIATRICS

UNDER THE CHARGE OF W S CHRISTOPHER, M D,
Professor of Diseases of Children, Chicago Polyclinic, Professor of Pediatrics 'College of
Physicians and Surgeons, Chicago

Infantile Scorbutus —

H M McClanahan contributes to the *Medical Record*, October 3, 1896, a number of cases of infantile scurvy. The credit of giving this disease a distinct place in nosology he gives to W B Cheadle, of London, who described three cases in the *Lancet* in 1878. Previ-

ous to this, isolated cases had been noted in Germany as examples of acute rickets, and one case in 1873 by Ingler as infantile scurvy.

Regarding etiology, the writer is of the opinion that the disease is never seen in the infant nursed at its mother's breast, and probably never in the infant fed on fresh cow's milk. In the cases reported by Cheadle, the greater number of patients were fed on farinaceous foods—some on desiccated patent foods, a number on condensed milk, and several on pancreatized milk. In most of these cases the infant had no fresh food; a few were given a small amount only. Of the cases reported by American writers, he finds a few in which the infant had received a small amount of breast milk, but usually it had been weaned, and the diet in most of the cases was some patent food or condensed milk.

Can sterilized or pasteurized milk cause this disease? Upon this subject there is a difference of opinion. Cheadle, Ashby and Wright in England, and Osler in this country, say it can. Rotch, of Boston, and Northrup, of New York, say there is no evidence to prove that it can. All writers agree that the real cause of scurvy is a lack of fresh food. Cheadle believes this lack of freshness to consist in deficiency of organic acids. The English writers on children—Ashby and Wright, Carmichael, Eustace Smith, Goodhardt, Doukin, and Angel Money—all speak of scurvy as a complication of rachitis, and call it scurvy rickets. It is no doubt true that rachitis is much more prevalent in England than in this country, and, consequently, that the two diseases are frequently associated. Of the cases collected by Northrup, scarcely one-half presented any symptoms of rickets. Professor Rotch states "that his own individual experience has been derived from fifty or sixty cases and that not more than a dozen presented any symptoms whatever of rickets." Now, as many cases of rickets present no evidence of scurvy, and, in this country at least, many cases of scurvy present no evidence of rickets, it is clearly a misnomer to call the disease 'scurvy rickets.' Both are diseases of nutrition, both have for their cause improper food, and they are often associated, but each has its distinct clinical course. An infant reared on food lacking in fats and proteids will likely develop rickets. If the food lack in freshness, scurvy may manifest itself. On the other hand a food abundant in fats and proteids will not cause rickets, but may, from lack of freshness, cause scurvy with absolutely no evidence of rickets. The two diseases are therefore often associated because of food defects, but they do not bear to each other the relation of cause and effect. Age is an important factor, the age limits being at one extreme four

months and at the other three years, almost all cases occurring between the ages of six and eighteen months, the period when infants are kept on an exclusive diet. We might reasonably expect to find the disease among infants deprived of fresh air, sunshine, and wholesome environment. Frequently this is the case, but let it be remembered that a number of cases have been reported from the homes of the wealthy, where the infant has had every comfort that money could procure, everything needed for health except proper food. These are usually cases in which the infant has been reared on some patent food.

Observations on the Thymus Gland.—

Alfred Clark (London *Lancet*, Oct 17, 1896) reports the case of a male child, aged eight months, that came under observation because of swelling of the hands and feet. The family history was unimportant and the parents were both healthy. At birth the child was apparently healthy, and continued to be so until six months old in spite of being fed from a dirty bottle and otherwise neglected. About the sixth month the mother noticed a slight swelling and coldness of the hands and feet, and on that account took the patient to a medical man. The swelling, however, increased and spread to the legs. The child was "waxy"—or, rather, "tallowy"—in complexion. The heart and lung sounds were normal. There was no cyanosis. The fundi oculorum were normal. The bowels were relaxed, the motions greenish and offensive. The urine was acid, there was no albumin, there was slight excess of urates, the quantity of urine passed was not notably deficient. The swelling gradually increased and spread in spite of diuretic and tonic treatment, until the eyes were almost closed and the hands, arms, feet and legs were so distended with fluid as to feel like a firmly stuffed cushion. Later two symmetrical ecchymoses appeared, one on the inner side of each supra-clavicular fossa, about the size of a silver half-dollar. The temperature remained normal, and the pulse and respiration grew weaker as death approached, but were in no way remarkable. One month after coming under observation the child died.

At the necropsy, made twelve hours later, the right kidney was found healthy, the left was about twice the size of the right, and its pelvis and ureter were dilated, the latter to the size of the little finger and the former to contain two fluidrachms. There was no communication with the bladder on the left side, although the ureter was pervious as far as that organ. The thymus gland was completely absent, the upper part of the anterior mediastinum being

empty and the pleurae in apposition. There was no fibrous tissue to mark the position of the absent organ.

The writer thinks this condition of things is quite unique as regards the absence of the thymus gland and is interesting as proving that the thymus is not indispensable to fair health and normal development—at all events for the first six months of life. The symmetrical ecchymoses arising without apparent cause harmonize with the recorded connection between this gland and hemophilia. The renal abnormality only contributed in a subsidiary degree to the fatal result, as the hydronephrosis was slight and the right kidney quite healthy and apparently adequate for the necessities of the body, for no uremic symptoms were present and the urine passed was not deficient. There were no symptoms of acromegaly. The digestive functions improved under treatment, and the appetite remained good to the last.

A case of tuberculous abscess of the thymus is reported by Carpenter in *Pediatrics*, July 15, 1896. The child, two years of age, had been ill for a year. When first seen the face was plump and swollen, in marked contrast to the emaciation of the body. At the autopsy the thymus was found to be wholly obliterated by a tuberculous process.

We would especially call attention to the presence of swelling in both of these cases—in one general, and in the other confined to the face.

Digitalis in Children —

The *Therapeutic Gazette* for April 1896, calls attention editorially to the fact that while digitalis is a cardiac stimulant of inestimable value in many cases in which there is failure of compensation in valvular disease of the heart affecting adults, it frequently not only fails to do good, but actually seems to do harm, when administered to children suffering from similar lesions. It is a well known fact that there are a few cases of cardiac disease in adults in which digitalis also fails to do good. It is not infrequently found, in cases of mitral regurgitation, that digitalis seems to cause an increase in the quantity of blood which regurgitates into the left auricle and so causes distention of this cavity, with consequent pulmonary engorgement and distention of the right side of the heart. In children it would seem probable that this untoward effect of digitalis in mitral regurgitation occurs much more frequently than in adults. Again those who have had the most experience in administering this drug to children under puberty will remember that it is much

more apt to cause an irregular action of the heart, both as to the force of the individual beat and the rhythm, than it is in adults. It does not seem to cause the full pulse and improvement in circulation which we are wont to expect from its use, and very frequently some gastric disturbance is caused by it which renders its further administration ill-advised even if the circulatory symptoms have not already prevented its further use.

Digitalis, if employed at all in diseases of children, should be given in very minute doses. Tincture of *strophanthus* produces effects in this class of patients which are similar to those caused by digitalis in adults. If the patient is under puberty, *strophanthus* should be first choice in the way of a drug for the condition of failure of compensation due to valvular disease of the heart, but if the patient is above puberty, digitalis is of course the more reliable remedy.

Antitoxin in Diphtheria —

The American Pediatric Society are about to undertake a second collective investigation of antitoxin, and they now ask that records of cases of diphtheria involving the larynx, whether operated or not, occurring in the United States, be sent to the Secretary, W. P. Northrup, M. D., 57 East Seventy-ninth street, New York, N. Y.

The following sums up the conclusions of the Society based on the first investigation.

Dosage — For a child over two years old the dose of antitoxin should be, in all laryngeal cases with stenosis, and in all other severe cases, 1500 to 2000 units for the first injection, to be repeated in from eighteen to twenty-four hours if there is no improvement, a third dose after a similar interval, if necessary. For severe cases in children under two years, and for mild cases over that age, the initial dose should be 1000 units, to be repeated as above if necessary, a second dose is not usually required. The dosage should always be estimated in antitoxin units, and not of the amount of serum.

Quality of Antitoxin — The most concentrated strength of an absolutely reliable preparation.

Time of Administration — Antitoxin should be administered as early as possible on a clinical diagnosis, not waiting for a bacteriological culture. However late the first observation is made, an injection should be given unless the progress of the case is favorable and satisfactory.

NEUROLOGY AND PSYCHIATRY

UNDER THE CHARGE OF HUGH T. PATRICK, M.D.

Professor of Neurology in the Chicago Polyclinic Consulting Neurologist to the Illinois Eastern Hospital for the Insane.

Raynaud's Disease Associated with Uremia —

C. Crawford Aitken (London *Lancet* Sept. 26, 1896) presents a case of the rare symptom complex known as Raynaud's disease, associated with which were exacerbations in the uremic symptoms coincident with the vascular spasm. The patient was a man aged 43 years who came under observation in October, 1894. He had a well marked gouty diathesis and albuminuria of more than six years' standing. His father, who had died from renal disease, was alcoholic and probably gouty, an elder brother suffered from sciatica, and the mother had been subject to epileptiform attacks. The patient was in good circumstances, regular in his habits and very temperate both in food and drink, but for many years had suffered occasionally from gout. There was no suspicion of syphilis. The kidney condition had been first diagnosed in 1889 as chronic interstitial nephritis. It had latterly grown worse; the average excretion of urea had dropped to 250 grains daily, and there were the usual symptoms of chronic uremic poisoning, but up to March 1895, there was no appearance of muscular twitching or convulsions. The symptoms of Raynaud's disease dated back to 1887, when the ears suffered paroxysmal attacks of cyanosis, numbness and pain. These recurred at first as often as five or six times in the twenty-four hours, but afterwards became less frequent though more severe. No morphological change took place in the ears. Similar symptoms appeared in the fingers in April, 1888, and in the toes about four years later. The appearances were almost always bilateral, though not absolutely symmetrical. Cyanosis was always preceded by a stage of syncope with local pallor and coldness and subjective sensations of numbness and tingling. Then came the initial stage of asphyxia with local hyperesthesia, slight rise of temperature, and throbbing pain, and, as the parts became more highly discolored, gradual, though in some cases rapid loss of tactile sensation and constant aching pain. There was no relationship to any special nerve-supply, but it was interesting to note that as a rule the first and fifth digits were comparatively slightly affected. Mortification took place in the case of many of the digits, amputation occurring in the fingers at the second interphalangeal joint and in the toes

generally at the first interphalangeal joint. It occupied in each instance some three or four months. The case presented the usual cardio-vascular changes of chronic Bright's disease. The pulse showed increased tension during the attacks of arteriolar spasm, but there was no loss of force. Even on occasions when the cyanosis was unilateral the pulse in the radial, ulnar, dorsalis pedis, and posterior tibial vessels showed no difference on the two sides except the change in tension. The urine showed the renal excretion of urea to be never higher than 320 grains daily. It frequently contained a small amount of hemoglobin, with about 0.3 per cent albumin (Esbach) and numerous epithelial and granular casts. In connection with the general nervous system there was little to be noted. There was great mental torpor and persistent exaggeration of the plantar and patellar reflexes. Albuminuric retinitis and swelling of the disks were apparent in each eye, and there were some small retinal hemorrhages. The vascular spasm showed itself not only in the extremities, but also in the retinae, and it is suggested that the vessels of the kidney were also implicated, as in the course of observations extending over some months it was found that the excretion of urea showed marked diminution during the attacks of cyanosis.

TABLE SHOWING THE AVERAGE DAILY EXCRETION OF UREA BETWEEN AND DURING SUCCESSIVE ATTACKS OF RAYNAUD'S DISEASE

Date of Attack	Average Daily Excretion of Urea		Remarks
	Between Attacks	During Attack.	
1895			
March 2.		280 grains	
March 20	320 grains	200	
April 12	260 "	140 "	Twitching marked Two fits
May 9..	280 "	200 "	Twitching marked Two fits.
May 21	320 "	240 "	No twitching
May 31	280 "	160 "	One fit.
June 13	280 "	200 "	One fit.
June 20	260 "	180 "	One fit.
June 28	240 "	120 "	One fit.
June 31	260 "	200 "	One fit.
July 26	200 "	120 "	Several fits Coma

Between May 21 and July 2, 1895, there were seven uremic convulsive attacks, five of which had an apparent close relationship to the crises of concurring attacks of severe vascular spasm. On July 4, 1895, the morning urine showed only four and three-fourths grains of urea per ounce. An attack of vaso-motor spasm commenced shortly afterwards, and showed itself not only in the

extremities, but also to a very marked extent in the retinal vessels, and on July 6, when it was at its height, uremic convulsions occurred. The discoloration continuing, two more uremic fits occurred on July 9. Five minutes before the second fit the urine passed showed only four grains of urea per ounce. Three hours after a further specimen showed five and a half grains, and this proportion was maintained for some days the retinal vessels regaining their normal size and the cyanosis in the extremities disappearing. Relapses, however, were frequent, and the patient slowly sank. On July 26 intense cyanosis reappeared in the various digits and in the ears, several uremic fits occurred in rapid succession and the urine passed contained only three grains of urea per ounce, the total daily secretion having sunk to 120 grains. Within a week death took place from uremic coma. The friends unfortunately refused to permit a necropsy.

The remarkable occurrence of uremic exacerbations and attacks of vascular spasm in this case seems to indicate some relationship. It seems scarcely possible that uremia could occasion the vaso-motor phenomena. It is a condition of not infrequent occurrence, but the vascular condition such as is found in Raynaud's disease, though influenced to some extent by the gouty diathesis, is still a symptom of the rarest occurrence. On the other hand it is interesting to conceive the possibility of vaso-motor spasm producing uremia, for if, as in the above case, it were present, not only in the extremities but also in the retinae, there seems no reason for its absence in the kidneys, where, if present, it would materially interfere with excretion, and although this might not be hindered to any great extent if the organs were healthy, yet a continued or frequently recurring condition of vascular spasm might, by producing inflammatory or degenerative changes, or by augmenting pre-existing inadequacy, favor the occurrence of serious uremic poisoning.

Thymus Feeding in Graves' Disease —

The recent literature of the treatment of exophthalmic goitre contains numerous references to the value of thymus feeding in these cases. The theory on which it is based is a supposed want of balance in the internal secretions, and a restoration of equilibrium by antagonizing the thyroid body, which is supposed to overact in cases of Graves' disease.

An excellent *résumé* of this treatment is found in the *New York Medical Journal* of October 31, 1896, which includes an abstract of a case reported by David Owen in the *British Medical Journal* of

October 10 This case, of twenty years' duration, came under observation in May, 1893 Ordinary remedies were tried, but without benefit. After the patient had taken raw thymus, obtained from the lamb, in doses of about a quarter of an ounce daily for three months, the cardinal symptoms disappeared, and he was able to work better than he had done for years The treatment was discontinued in January, 1894 Three months later there was a return of goitre, tachycardia, and slight exophthalmia He then resumed the thymus, taking half an ounce or more of the raw gland three or four times a week By July, 1894, the eye symptoms and goitre had quite disappeared, and the pulse was 72, though before treatment it was constantly over 120 He had gained in flesh, felt quite well, and was able to work twelve hours a day as a laborer The following autumn he found himself unable to take the gland any longer, on account of its nauseating effects At the end of three months he complained of increasing weakness, and expressed a fear that the old disease was returning He then again resorted to the thymus, taking it for two months, but this time with no benefit This was very disappointing, says the author, but as he remembered that the lambing season corresponded to the spring, it occurred to him that the failure of the glands might be due to their having been taken from older sheep than before, so it was resolved to give calf's thymus a trial, as lamb's was not obtainable On March 22, 1895, the patient was worse than he had been before, and suffered from intense dyspnea, the thyreoid was large and pulsating, and there was violent throbbing of the carotids, the action of the heart was extremely tumultuous and irregular, and the pulse was over 140, there were marked tremors of the hands, especially the left, and the whole body was much emaciated The same night he took about half an ounce of calf's thymus, and repeated the dose in the morning During the following week he improved astonishingly On March 23 he felt much better, his breathing being much relieved On March 26 the pulse was 126, but the action of the heart was not so thumping and irregular as before, and the dyspnea was improved On March 28 the patient felt still better, exophthalmia was decidedly less marked, pulsation in the neck scarcely visible, and goitre much diminished, tremors were less pronounced, the pulse was 104, the heart quiet and more regular, and there was no dyspnea Dr E J W Carruthers, who had seen the patient just before the calf's thymus was given, on seeing him a week later was surprised at the remarkable improvement which had taken place in so short a time The next three months the patient spent mostly in

bed, and gastro-intestinal trouble prevented him from taking the thymus, except occasionally. Still he gradually improved, and by October, 1895, suffered only from debility and emaciation. The improvement continued during the winter, but there was a return of symptoms this summer. He now suffers from occasional palpitation, sense of weakness, and low spirits, and there is some prominence of the eyes. There are, so far, no goitre or tremors, and he is fairly well nourished. The patient is not nearly so well as he was two years ago, but it must be noted that during the last eighteen months he has taken much less thymus than before, on account of its nauseating effects, and for nine months had none at all.

Idiopathic Spasm of the Tongue —

Stefano Personali reports (*Wiener Klinische Rundschau*, Sept 27, 1896) the case of a woman 45 years old, with marked neurotic heredity, and who in early life suffered from nervous attacks and hysterical symptoms. She was of weak constitution but menstruated regularly, and there was no history of convulsive seizures. She was married at 25, but was never pregnant. At 30 a severe broncho pneumonia developed, followed by loss of flesh and occasional hemorrhages, probably tubercular. At date of writing the hemorrhages were less frequent, but there were signs of apical catarrh, and for two months she had been irritable and sleepless. After a family quarrel her tongue was affected with clonic spasm which kept it in constant motion and later thrust it from the mouth, the attack lasted a few minutes, when the tongue was drawn quickly back into the mouth. These attacks occurred seven or eight times daily, and each time the tongue became firm, reduced in diameter, and was thrust as far as possible from the mouth. The floor of the mouth and the mylo hyoides muscle shared in the cramp. The attacks terminated with a side movement of the organ and a profuse discharge of saliva. The patient had no aura and the electrical reactions were normal.

The attacks were lessened by having the patient hold a piece of cork firmly between her teeth at the beginning of an attack. This procedure, with bromides and rest, relieved the trouble. A careful examination of the nose, pharynx, larynx, mouth, teeth, and eyes showed nothing, from which the writer concludes that he had to deal with an idiopathic cramp.

LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

UNDER THE CHARGE OF WILLIAM E CASSELBERRY, M.D.,
Professor of Laryngology and Rhinology, Northwestern University Medical School, Chicago
Laryngologist and Rhinologist to St Luke's Hospital, Laryngologist to
Wesley Hospital, etc.

Turbinitomy in Nasal Stenosis An Analysis of Sixty-six Cases

It will be remembered that Mr Carmalt Jones, of the Central London Throat, Nose, and Ear Hospital, has for some time advocated the free and thorough removal of hypertrophied inferior turbinated bodies by means of an instrument called the "spoke-shave," which he devised for the purpose. He proposes this operation as a substitute for, and more thorough removal than, the usual method of electro-cauterization. It has not been generally adopted, for the reason that it is feared, in the first place, that too large an opening may be made and subsequent dryness with incrustation of the nose and pharynx result, and, in the second place, the operation cannot be wholly free from serious danger of hemorrhage. It is therefore interesting to note the analysis which Dr Abercrombie, of Glasgow, (*Journal of Laryngology, Rhinology, and Otology*, October, 1896) makes of Dr Jones's cases. Out of the sixty-six cases, relief was afforded by the operation in sixty-two—that is, in almost 94 per cent of the cases the operation was successful in a greater or less degree. Of the sixty-two successful cases the relief afforded by the operation was very marked in twenty-one instances, and especially so in four of these. In fourteen cases decided improvement followed the operation, and in twenty-seven patients the operation gave slight relief only. The large majority of patients were young adults, although one was 71 and another but six years of age. Turbinotomy alone was performed in most of the cases, but in a few enlarged tonsils were removed, or adenoids scraped, in addition. Nitrous oxide gas was administered to five, being found quite effective, answering for the few seconds required for the operation. In half the remaining cases a ten-per-cent solution of cocaine was applied locally by cotton plugs, but in spite of this pain was felt in every case. In the other half, no anesthetic, local or general, was given, most of the patients describing the operation as being very painful, but a few not seeming to regard it as painful. The bleeding in every case was profuse, but in no case was it alarming at the time of the operation, although more or less bleeding occurred from the nose for several days afterwards in many of the cases, and in one man a secondary hemorrhage occurred which was so serious as

to necessitate his admittance to the hospital. Most of the patients returned to their homes on the day of the operation. Only one patient fainted after the operation. After headache, more or less severe and chiefly frontal, was present in most of the cases, and slight swelling about the nose and eyes was not uncommon for a few days. In no case, so far as could be judged from the patient's letters, has atrophic rhinitis resulted, although in two the condition of pharyngitis sicca is now observed, it is not certain, however, that this is the result of the operation. No external nasal deformity has resulted, rather the reverse. The nostrils being stimulated by the passage of air through them, become more active the nose becoming larger instead of being a small and useless organ. Reproduction to a greater or less extent of the mucous membrane occurred, in fact, in some of the cases it has been necessary to operate a second time or to use the cautery, so great was the reproduction of tissue.

Bezold's Mastoiditis —

The characteristic of Bezold's mastoiditis is that the pus from the antrum, instead of bursting through the external wall of the process, comes through the internal wall at the digastric fossa, works along the digastric muscle then under the sterno-mastoid and along the carotid sheath. Mendel of Paris (*Journal of Laryngology, Rhinology, and Otolaryngology*), September 1896) observed a case from the beginning. The patient was a man 32 years old. Fifteen days after the onset of an otitis media he complained of pain at the superior point of attachment of the sterno-mastoid which was increased by rotary movements of the head, no redness or tumefaction. On pressing deeply over this spot a flow of pus from the meatus took place. As the otitis proper got better, the membrane tended to heal, thus shutting in the pus of the cervical abscess whose only exit was through the tympanum and meatus. The author performed paracentesis five times, and by means of injections and instillations through the ear obtained a complete cure in eight months.

OPHTHALMOLOGY

UNDER THE CHARGE OF HENRY GRACE, M.D., NEW YORK

Subconjunctival Injections —

Bernstein (*Journal of the American Medical Association*, Sep. 12, 1896) carefully reviews the work of different men with his method of treatment. He advocates its use in certain cases and reports

seven—two of ulcerative keratitis with hypopyon, one of iritis, one of keratitis punctata, one of tobacco amblyopia, two of optic atrophy, and one of disseminated choroiditis. Four were helped by the treatment, two were not affected, and one was still under treatment at the time of the report. The method is indicated in interstitial keratitis of a mild type. In ulcerative keratitis with hypopyon it is said to hasten the healing. In sthenic iritis it is contra-indicated, but after violent symptoms have abated the subconjunctival injection is of great value. In irido-choroiditis in many cases remarkable results have been obtained. In retino-choroiditis the injections probably prevent the destructive process to some extent. In affections of the optic nerve of an inflammatory type, but little good is obtained, and in atrophy no result. In scleritis good results were reported.

In the discussion which followed the reading of the paper Dr de Schweinitz, of Philadelphia, said he had used subconjunctival injections since 1892 and had secured good results in iritis, provided there was no high inflammatory action. In episcleritis and some types of keratitis they prove of value also. In corneal ulcers and diseases of the deep coats he noted nothing favorable. He called particular attention to the promptness with which these injections, either saline or mercuric, relieve pain and advance resolution.

Dr Savage had found the injections too painful, but had used the bichloride and not the cyanide of mercury.

Dr Reynolds, of Louisville, thought subconjunctival injections helped to break up synechiæ, but were contra-indicated during the active stage of any form of iritis.

Dr Roy, of Atlanta, found them of value in ulcerative and suppurative forms of conjunctivitis or keratitis.

Optic Atrophy from Filix Mas —

Since Massius reported two cases of amaurosis caused by the ethereal extract of male fern (*Jour de Prat Med*, vol 66), Grotz has reported another. A man, 29 years old, went to the drug store and asked for something for tapeworm. The druggist gave him capsules, each containing 25 centigrammes of male fern and an equal amount of pomegranate. The patient took thirty-two of these with some castor oil. In the evening he began to feel ill, and the next day became unconscious. On the following day he was completely blind. An examination by an oculist at that time showed mydriasis with a normal fundus, but eight days later atrophy of the optic nerve was apparent. The toxic action was due to the extract of

male fern The toxic dose varies from four to forty five grammes, depending upon the freshness of the preparation and also on the presence of castor oil, which favors the absorption of the male fern In experiments the male fern given without oil was harmless but the same dose given with oil caused death of the animals

Eve Symptoms of Intra-cranial Tumors —

Norris (*University Medical Magazine*, March, 1896) discusses these important symptoms in an elaborate article Concerning papillitis the writer says that inflammatory changes in the head of the nerve are present in about 90 per cent of all cases of basilar meningitis and intra cranial growths He calls attention to the fact that in the early stages of the swelling of the nerves there is often wonderfully little interference with the acuity of vision and that owing to this circumstance the early symptoms of papillitis are often overlooked Concerning the stage of intra cranial disease at which the papillitis occurs, the writer says it is by no means always an early symptom, but often develops only when a case approaches its termination, large intra-cranial growths may long be without it, while small ones may rapidly produce it The difference between the appearances of ordinary papillitis and the swelling produced by pressure on the optic nerve close to the foramen are carefully discussed

A New Spectacle Lens —

F Park Lewis (*Medical Record*, July, 1896) describes a new compound achromatic lens for use in aphakial eyes and others with a high degree of hypermetropia The lens is made in two pieces—the back piece, containing the spherical element, being ground of crown glass and the front piece, containing the cylinder, being made of flint The front glass is made in the form of a meniscus, and the edges ground flat so that it can be cemented to the rear glass He has found that this combination will give better vision in suitable cases than any other glass

Episcleritis Periodica Fugax —

Stephenson (*Medical Press and Circular*, March 18, 1896) gives the histories of some of the more characteristic cases that have fallen under his notice He says that the disease is marked chiefly by inflammation affecting the conjunctiva of the eyeball and episcleral tissue. It is of a fleeting nature, the attacks lasting from twenty four hours to eight days Photophobia and lachrymation are some

times present, but in other cases these symptoms are absent. Pain is at times complained of, more especially on moving the eye. Spasm of the ciliary muscle and contraction of the pupil were noted more than once. The remote cause is believed to be "dirty" blood, and the exciting cause some external condition, such as change of temperature. For treatment a brisk purge followed by a 5-per-cent solution of atropine will cure the attack. The attack itself is of no importance, but the disease is worthy of notice because of its relapsing character.

Serum Therapy in Leprosy —

El Siglo Médico for February, 1896, published a *résumé* of an article by Carrasquilla, giving the results of treatment by anti-leprosy serum. So great an interest has been aroused by the favorable report that the Government of Colombia has decided to establish an institute for the prosecution of the study. Fifteen cases of undoubted leprosy are reported. In general, it may be said that in the eyes the conjunctival injection and the minute tubercles at the ciliary margin of the lid disappeared, and lacrymation ceased, in fact, the whole mucous membrane took on the semblance of healthy tissue. The great swelling and lividness of the ears disappeared to a large extent, an effort to return to the normal being shown, the size of the lobe diminished, and the tubercles and cicatrices appeared to fade away.

Amyloid Degeneration of Conjunctiva —

Komocki (*Beitrag zur Augenheilkunde*, No 22) has collected forty reports of cases of amyloid degeneration of the conjunctiva. In many of these there was no degeneration found in other organs. Both lids were tremendously swollen, and the hypertrophy of the retrotarsal upper lid was so great that the lids were often everted, it had a yellowish-red appearance and an elastic feeling. Microscopic examination in the case reported showed thickening, the epithelium consisting of four or five layers of cells, the outer layers of which were horny. Under the epithelium was adenoid tissue, and under this degeneration of the entire parenchyma of the retro-tarsal fold. He did not find micro-organisms.

Eucaine in Ophthalmic Practice —

Vinchi (*Deutsche Med. Ztschr.*, April, 1896) reports some experiments with this compound. He finds that in from one to three minutes after instillation, anesthesia begins in the cornea and

spreads to the conjunctiva, lasting ten to twenty minutes. The physiological action is similar to that of cocaine, but the drug is less poisonous, it does not cause ischemia, but vascular dilatation occurs, the pupils are not affected, and the reaction to light remains normal, accommodation is not affected. The patients complain of considerably more burning pain than when cocaine is used, and this will probably be the greatest objection to the drug. It is said to be non-poisonous, and solutions do not decompose when kept. The solution can be boiled without affecting the activity of the drug.

Symmetrical Changes in the Macula —

Koller (*Medical Record*, August 22, 1896) reports two cases of this rare and fatal disease of infants. The two cases correspond almost exactly to the original description given by Warren Tay in 1881. They occurred in daughters of the same family, both of whom showed the cherry red spot in the macula surrounded by the whitish opacity. Both children were still alive when the paper was written, but both showed well marked signs of atrophy.

GENITO URINARY DISEASES

UNDER THE CHARGE OF G. FRANK LYDSTON, M.D.

Professor of Surgical Diseases of the Genito-Urinary Organs and Syphilology in the Chicago College of Physicians and Surgeons.

Hypertrophy of the Prostate, Severe Cystitis. Double Castration —

Dr Arthur Hunt, in the London *Lancet* of October 3, 1896, reports the following case. A man, aged 72 years, of fine physique, had an attack of retention of urine in April, 1893. It was brought on by a chill, and until the retention he was unaware of anything being amiss. On examination the prostate was found to be tender and enlarged. The patient was kept in bed for a week, and the urine was drawn off by a catheter twice daily. After this, micturition was free until the following November, when retention again occurred after exposure to wet. He was confined to bed for a fortnight, and catheter life again began. The amount of residual urine was about five ounces. The importance of keeping the catheter clean and of adopting measures to prevent the onset of cystitis were duly impressed on him. The prostate had increased in size since the previous attack of retention. Decomposition of the urine was for a long time prevented, but after three months' daily use of the catheter the urine gradually became offensive and ammoniacal.

Pain about the perineum and thighs became constant and the passage of the catheter more difficult. In February, 1894, the left testicle became inflamed and he was again confined to bed. During the continuance of the orchitis the left side of the prostate sensibly diminished in size, and the catheter entered the bladder more easily. The bladder was daily irrigated with various antiseptic solutions, salicylic acid, quinine, and boric acid being used in turn. Iodoform emulsion was injected and left in the bladder. His diet was carefully regulated, and hip-baths were used every night and gave some relief to the pain. Morphine suppositories were occasionally used. Of internal remedies large quantities of infusion of buchu, freshly prepared every day, seemed to do most good. The amount of residual urine increased, and he passed only a few ounces daily without the catheter. The anus was patulous and the mucous membrane of the rectum prolapsed. June 11, 1894, the urine was very offensive, and a column of it on standing showed half pus. There was never any blood. The prostate had all the while continued to increase uniformly in size, and its upper border could not be reached by the finger, it was firm to the touch, projecting backward and almost blocking the rectum, laterally it extended nearly to the pelvic wall. In the autumn the patient became considerably weaker and was confined almost entirely to the house.

Dr. Hunt performed double castration on March 15, 1895, by a single median incision. Three hours after the operation the patient passed three ounces of urine naturally. This was the largest amount passed without a catheter for six months. For five days between 42 and 50 ounces were passed daily, then retention occurred. The doctor was surprised, on examining the gland, to find his finger tightly gripped by the muscles about the anus. The gland was even then slightly diminished in size. On the seventh day the wound was healed and the patient allowed up on the sofa, but there was much swelling and tenderness of the stumps of the spermatic cords. Hot boric-acid fomentations, with glycerin and belladonna, relieved the tenderness, but the swelling and retention continued. On April 9 the power of voluntary micturition returned and the swelling of the cords sensibly diminished. Six weeks after the operation there was still some slight induration about the stump of the left cord, but all the urine was passed naturally and with increasing force. The gland continued to decrease in size, the cystitis became less and less, and the patient's general condition so improved that in August, 1895, he was able to go to Scotland for shooting and fishing and walked as much as twelve miles a day.

Irrigation of the bladder was practiced, on and off, till August. Since then no catheter has been passed. The urine is now clear and quite free from odor. The patient has quite recovered his former strength and spirits and is able to go out in all weathers. There is very little of the prostate gland to be felt.

September, 1896. The patient has kept in very good health and has gained flesh. The urine is acid and free from pus. No catheter has been passed for thirteen months. Micturition is normal. The atrophy of the prostate is apparently complete.

Sexual Hypochondriasis in the Male —

Hypochondriasis in the male, with reference to sexual matters, is a subject of importance as well as of interest, and one which has always seemed to the writer to demand the exercise of the highest qualities of the physician in its treatment.

In these cases there is present a form of mental unsoundness, characterized by a morbid anxiety, either baseless or having only very slight foundation, relative to the state of physical health. The patients who would be included under the above title never have healthy nervous systems, so that one could well regard the condition as a nervous disorder.

In connection with this subject Dr. John Lindsay (*Philadelphia Polyclinic*, October, 1896) reports the following case which recently came under his care.

J. S.—, aged 31 years single, engaged in the milk business was of a nervous temperament but appeared well nourished and in good condition. His trouble was about the small size of his penis and testicles. Examination revealed a penis and testicles perfectly normal as to size and appearance, the former showing a circumferential measurement of three inches, while his testicles would not have disturbed a man with a well balanced nervous system. Paget tells us that 'ignorance about sexual affairs seems to be a notable characteristic of the more civilized part of the human race.' This case is a good illustration of the truth of his teaching.

Dr. Lindsay could get no satisfactory answer as to why this man became hypochondriacal, nor could the duration of the condition be accurately determined. Probably he contemplated marriage, and his inquiries as to the eternal fitness of things had led him to wrong conclusions.

How was this patient treated? Not by ridicule and making light of his anxiety, with the certain result of sending him away disappointed and unsatisfied, but by instructing him that he was

fully developed Had the man been suffering from intestinal catarrh, or accumulation of feces, or anemia, it would have been desirable to treat such disturbing issue medicinally, and thus indirectly help him to stand on a proper mental platform with regard to the size of his sexual organs

The treatment in this case is one of kindly and also emphatic instruction as to true facts, showing that occasional emissions are not in themselves a sign of disease, but what is to be expected physiologically in a robust man who is leading a continent life If the reflex centre in the spinal cord is over-irritable, one ought to give sedatives If a patient is anemic, it is proper to prescribe iron, good foods, and beneficial exercise, but one must be careful to avoid the habit of prescribing for all possible symptoms as they arise

Two Cases of Uro-Genital Tuberculosis.—

Dr James T Jelks (*Hot Springs Medical Journal*, October, 1896) reports a case of tuberculosis of the prostate and bladder The man was a liquor-dealer by occupation, family history good, father and mother still living, at the ages of 69 and 77 respectively About fourteen years ago he contracted gonorrhea, which resulted in swelling of the testicle This was treated by hot fomentations, and finally got well without atrophy following In 1889 the patient contracted syphilis Two and one-half years ago he was suddenly seized with dysuria, which lasted for three weeks, at which time hematuria set in, the blood passing in clots prior to the flow of urine This attack ceased, but in six months recurred, the bloody urine passing several times a day and continuing some days For the last two years he has urinated about every hour during the day and night, each act of micturition being accompanied by great pain before, during, and after urination In July, 1895, he was treated for stricture of the urethra by the use of steel sounds The dilatation was carried up to No 20, American scale The use of the instruments was followed by considerable hemorrhage In September, 1895, the blood ceased In this case Dr Jelks made a clinical diagnosis of tuberculosis of the prostate gland and bladder, which was confirmed by the microscope

Case 2 Tuberculosis of the bladder Mr Y—— consulted the author on account of a persistent hematuria which had continued for eight years One member of his family had died of consumption Mr Y—— is an active man, barber by occupation, with good habits, and while the hematuria has been constant all these years, it has not interfered with his labor He has suffered many things of

many doctors, without relief. A clinical diagnosis of tuberculosis of the bladder was made by Dr. Jelks, which was confirmed by a microscopic examination of the urine. Tubercle bacilli were present in the sediment in abundance. The patient would submit to no medical treatment so the doctor placed him upon the elixir preparation of iron to increase leucocytosis and thus give him an edge in his battle with the bacilli.

For the treatment of this class of cases medicine offers little hope of a permanent cure, and when the disease has existed so long, surgery is powerless to give relief. Surgical intervention should be urged if the disease is detected in its early stage and even when the bladder is involved it may offer some hope of a cure and

FORENSIC MEDICINE.

UNDER THE CHARGE OF M. D. EWELL, M.D., LL.D.,
Dean of the Kent College of Law, Chicago

Kleptomania vs. Stealing.—

A recent editorial in the *American Medico-Surgical Bulletin* (October 24, 1896) places this popular *quæstio vexata* in such a clear light, and is withal so crisply expressed, that we quote it in full

“The arrest in London of an American woman of good social position on the charge of theft, and the fact that her relatives and friends have advanced the plea of kleptomania in her behalf, have been the occasion of the revivification of the humor, editorially expressed this time, which may ever be counted upon to bubble forth from the lay intellect whenever the case of *Kleptomania vs Stealing* is called to the bar. Knowing none of the details of the case in question, the *Bulletin* declines to pronounce as to its merits, but it would take occasion to reiterate that kleptomania is different from stealing, and to tell the reasons why. Life and experience are both too bitter to permit us to hope that our efforts will bear a perfect fruit. But we shall consider ourselves repaid if we succeed in ridding the community, for a season at least, of the time-honored jests on this subject. For every devisable combination of wit on this theme was long ago exhausted, and whoever attempts a new essay on the subject is, unconsciously maybe, plagiarizing the works of a jester long since dead. Unquestionably the term ‘kleptomania’ has been abused, both by people who did not appreciate its significance and by others who advanced it as a means of getting out of an awkward situation. But the word and condition themselves are no more injured by such misuse than are the clergy by the entrance of a rogue into their revered profession. The confusion by the ignorant and vicious of kleptomania and stealing does not rob either one of its individuality.

“Kleptomania is a symptom of disease, and not a disease itself. As a symptom it may be found in various mental disorders, such as general paralysis of the insane, dementia, or imbecility, but it is most frequently encountered in disordered mental conditions which are best classified under the term ‘cerebral neurasthenia.’ Cerebral neurasthenia is a condition of brain exhaustion which manifests itself by a variety of general symptoms, and which swings, like a pendulum, backward and forward over the boundary between sanity and insanity. Thus, of people afflicted with this disease it is easy to

say that some are insane and that others are not, but there always remains a middle group as to whose mental soundness opinions would differ. Not to wander too far from the point at issue, it may be said at once that the most characteristic symptoms consist in morbid impulses and imperative conceptions. These mental abnormalities consist of a diseased prominence of an idea and a lessened will power of resistance. The nature of the resulting action will depend upon the character of the idea. If, for example, the prominent or fixed idea were fear of anything or any place, the resulting action would be resistance to attempts of any character to induce the possessor of the idea to approach the object of his terror. If the prominent idea were to set fire to objects the patient would probably become a pyromaniac.

"Homicides also may occur in this way, or the impulse may be no more dangerous than a mania for collecting pins. And it is under this class of morbid impulses that may properly be classed kleptomania. The fixed idea is to take something belonging to another (the value has no particular bearing) and the result often is arrest for theft.

"It is generally impossible to determine from the evidence furnished by a police blotter, whether or not the offender is responsible. If, after examination by a competent alienist no associated symptoms of mental disorder are discovered, it may be assumed that the theft was a crime and not a symptom and should accordingly be punished. But the existence of such a thing as kleptomania should be recognized and its significance understood by all who have to do with the administration of justice. And to those who ridicule it we would recommend a visit to some institution where such cases are cared for, or the perusal of some work on psychiatry, or, in default of the leisure for so extensive study, a reflection upon the well known yet ever instructive remark which was addressed to Horatio."

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At this writing, word reaches us that Mrs. Castle has been discharged from Wormwood Scrubbs Prison by order of the Home Secretary. On November 8 she had been sentenced, at the Clerkenwell Sessions, to imprisonment for three months, having pleaded guilty to a charge of shop-lifting. The case has attracted marked attention on both sides of the Atlantic on account of the social standing and wealth of the accused, as well as the fact that Mrs. Castle was said to be of unsound mind and that her thieving was in consequence of a disease known as kleptomania. This latter was

not pleaded at the time of the trial, and as there was no defense it was apparent that nothing could be done but to pass sentence on the unfortunate prisoner. At the time of her removal to prison she was in an extreme state of mental and physical prostration, causing apprehension to the prison authorities. Accordingly the Medical Board for Prisons was directed to inquire into her condition, and on their report the Home Secretary ordered the release. This action was in accordance with the regular rules governing the Home Office.

Mrs. Castle has been released, and the question of kleptomania has not been passed upon.

That there is no special disease to which the term "kleptomania" should be applied was long since conceded by psychologists, but that it is often a symptom which indicates serious disease of the brain and mental weakness is equally well established. The term was first employed by Marc, who noted a tendency of this kind in pregnant women—an observation which was confirmed by Jong and Tardieu. There are in every community a class of petty thieves who are so weak-minded that it is difficult to say whether they ought to be sent to prison or to an asylum. Thieving is common among imbeciles and idiots. Among the insane, paralytics and epileptics most frequently show this symptom, in the former disease it is not uncommonly the earliest sign. It may occur in any form of insanity, and is a not infrequent accompaniment of hysteria.

The diagnosis of kleptomania does not rest upon a simple impulse to steal, but is based upon a morbid mental condition of which thieving is the most pronounced symptom. From the data at our command we are not able to say whether Mrs. Castle's case falls within the category of true kleptomania or not. It is not sufficient to say that a rich person, or one who is in a position to gratify every reasonable desire, has stolen, to establish this condition, but the underlying mental defect must be shown, and above all the change of character, or *alienation*, which forms the groundwork of modern psycho-pathology.

The termination of this case furnishes the sapient and fiery editor of *Truth*, Mr. Labouchere, an admirable text for an onslaught on the Government. He says he does not believe in kleptomania, because it seems to attack only the rich, and he is sure that, if all affected with the disease were punished for stealing, it would soon limit the spread of the malady. We regret to have to differ from our colleague, for whose knowledge of politics we have the greatest respect, but whose entrance into psychology seems so limited. If

the editor of *Truth* would spend as much time in studying the minds of the poor as he does in decrying the mental defects of the rich, he would find that kleptomania is by no means uncommon among the lower classes. As to the efficacy of the treatment, material is ready to his hand. 23 out of 128 epileptics admitted to Broadmoor Asylum had been charged with larceny. Surely he will not neglect to cure these unfortunates at an early date.

In conclusion we can but express our respect for the administration of the criminal law in England. While in the wigs and gowns, and the effort to give solemnity to the proceedings, we see something of affectation in the main certain and quick justice is reached. That in this and many other cases it is tempered with mercy, is not to its discredit.

Human Fallibility in Its Relation to Accidents by Railway and on the Sea —

The *Lancet* (London) of September 26, 1896, contains an exceedingly interesting study on this subject from the pen of Dr Samuel P. Knaggs. He says that no matter what height human ingenuity and high engineering skill may attain in the perfection of scientific instruments and mechanical appliances and in the utilization of which there may be enforced the most strict discipline devised by experience and foresight, yet this wretched item, *human fallibility*, continually crops up and with invariable precision contributes its average numerical quota of misfortune. In this inquiry he deals with the general principles involved and he designates the various factors as follows: (1) automatism, (2) imperative idea, (3) the condition and capacity of the faculty of observation possessed by the observer and (4) the mental condition of the observer and his capacity at the time for the correct interpretation of what should be observed.

Under the term "automatic action" the writer classes all actions which are the result of habit. Examples of these are found in the repetition of certain words and phrases and actions. He mentions a well marked exaggeration of this condition which once contributed to a railway accident in England. On a certain line two trains traveling in opposite directions used to meet, according to circumstances, either at A or B Station at a given hour each day, B being distant only two miles from A. It was the duty of the station master at A daily to telegraph to B to know if the train had left and if not to say to the guard, "Line clear—right away." One day in answer to this inquiry he was told the train had just left

B Automatically he went out to the guard and said the fatal words, "Line clear—right away."

The writer is of the opinion that imperative ideas may give rise to actions which will lead to accidents, though he gives no instances, and he probably recognizes that they come comparatively seldom in question. He distinguishes between automatic action and imperative ideas, understanding by the former an act which is simply an habitual voluntary one performed inattentively and unconsciously, while the acts of the sufferer from imperative ideas are carried out in opposition to his volition and frequently associated with intense and painful consciousness. The latter are suffering from true mental disease.

The third division deals with the condition and capacity of the faculty of observation, including the complex subjects of personal equation and nerve reflex. Eliminating mental disease and the toxic action of drugs or liquors, he classes under this head inefficient training and defects in the special senses necessary for observation. Regarding the personal equation, he points out how a variation of a fifth of a second in an observation made with a sextant may result in an error of several miles in determining the position of a ship, and consequently greatly increasing the liability to shipwreck.

Under the fourth head he classes those various conditions that are due to long hours of overwork and anxiety, as well as the depressed condition due to incipient or chronic disease, also the impaired mental condition caused by the open or secret indulgence in alcohol or other sedatives.

In conclusion the writer has strong recommendations to make as to the frequent examination of employes, not only regarding their mental and physical states, but also in reference to the condition of the sensory organ upon which accuracy of observation depends.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints or, if they so elect, an honorarium will be paid for original communications.

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